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The Pennsylvania School Journal

DEVOTED TO SCHOOL AND HOME

EDUCATION

J. P. WICKERSHAM, EDITOR.

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THE SCHOOL JOURNAL

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Vol. 25. FEBRUARY, 1877. No. 8.

THE EDUCATIONAL EXPOSITION AT PHILADELPHIA.

WHAT A FRENCHMAN THINKS OF IT.

WE find in the *Journal des Instituteurs*, Paris, a series of articles written by a correspondent who was on the ground, concerning education at the Philadelphia Exposition. We shall translate and publish all of them, for we are sure our readers will be interested in knowing what an intelligent foreigner thinks of our educational systems, and of the exhibition we made of them at Philadelphia. There is a special reason why Pennsylvania should be interested in these articles. The writer selects our exhibit as representing the condition of American education generally, and makes it the basis of the greater part of what he has to say. He is not always complimentary to us, but we like him the better for his plain speaking. The articles are signed "B," and although we are not quite sure of it, we think they were written by Monsieur F. Buisson, the chairman of the delegation of French gentlemen, representing the Minister of Public Instruction, who visited us during the Exposition, and author of a valuable report on education at the Exposition at Vienna.

ARTICLE FIRST.

WITHOUT pretending to appreciate or even to embrace at a glance the exhibition of education which presents itself in the buildings and in the park of the Centennial Exposition, we cannot avoid expressing our satisfaction at seeing what a conspicuous place the *School* occupies this time in the general review of human industry. It has manifestly entered largely into the plans of those who organized the Philadelphia Exposition. The school in fact belongs to society, and we cannot separate the one from the other in the United States. It is owing to this that the Exposition gives not only more space than any other previously held to the representation of educational institutions, but it treats them expressly as an interesting and essential part of the national activity.

This manner of looking upon the position and work of instruction and the relation it holds to the public life, has not been, could not be, adopted by all foreign countries which have taken part in the Centennial festival. For some the distance, the greatness of the expense; and, for others, the little interest that had been awakened in pedagogical exhibitions heretofore, were the reasons that determined them to abstain from attempting to make much of a display in the educational department of the Exposition. It is for these reasons that Germany and Austria, countries which the last Exposition had placed in bold relief for great merit in their educational exhibits, are very feebly represented, except in books and in geographical apparatus. Switzerland has a summary exhibition, concise, if one may thus speak, but in part original, notably in the matter of educational statistics, which the grand works of Dr. Kinkelin have so directed as

to produce the best results. Holland and Belgium have also in modest proportions made exhibits very beautiful and good, some of the material presented having been prepared since the Exposition at Vienna, notably divers regulations for the organization of primary and primary superior schools. Sweden has again, as at Paris in 1867, and at Vienna in 1871, brought together her educational products in a charming rural school house, constructed of wood and upon a plan proposed as a model by the government. Norway shows some elegant school furniture, perhaps the only thing of the kind, with that of Sweden, which has any chance of being favorably considered here in view of the luxurious equipment of schools in the United States. France figures scarcely at all in the educational section, where she is represented only by collections of books and reports of Ministers of Public Instruction, and by a part of the educational documents of the city of Paris. Even of these some of the most important are wanting, probably because they had already been distributed. The contribution, very beautiful, and very remarkable, of the Industrial School of Design of St. Quentin, causes us to regret the more the absence of other exhibitors who would have done us honor.

But of all foreign countries, those which attract the most attention, because they make exhibits of new material, are Russia, Japan, and the British colonies, Canada at the head.

It is a revelation to many to see Russia present a large collection of apparatus, philosophical instruments, scholars' work, maps, and school furniture, for the use of different schools from the most elementary to the polytechnic. Those who saw at Paris the exhibition of Geography will recognize here the major part of the Russian collection which there met with so much success. We note particularly the exhibition made by the Pedagogical Museum of St. Petersburgh, an institution which aims to facilitate the production and distribution of all educational material necessary to different institutions: wall pictures for elementary schools; numerous designs and drawings, with specimens of the nature of those prepared in France by the House of Despolle, to illustrate natural history; geographical and ethnographical maps; small cabinets of physics for the military schools; models for design; mineralogical, zoological and botanical collections; manuals for singing, for music; plays and gymnastic exercises, etc. Evidently, Russia has profited by the last expositions to enrich herself with a multitude of educational objects, seats, tables, blackboards, etc., in imitation of the Germans and the Americans. She has applied herself at the same time to renew and perfect the models which she has had invented, notably the "ball counters," which form now a rich collection, answering all the needs of instruction, if not going beyond them. At the same time several special schools, those above all which are connected with the famous industrial and art museum of Moscow, which is the South Kensington of Russia, exhibit several remarkable series of designs made by their scholars present and past. The effort in view to create in Russia an industrial art, national and original, seems to be rewarded with decisive success. I say nothing of the publications and works in manuscript, of which there is a fine collection, as I am unable to read the Russian language.

Japan is even a greater surprise to people generally than Russia. It is the first time that this country was represented in a way so complete, so much in detail, so characteristic; at least so far as education is concerned. And in fact, it is worth the trouble to present to the public in brief a picture of the great revolution which has taken place in Japan.

It is well that one can this time touch with the hands and see with the eyes the wonders that have come to pass in that ancient country, for otherwise he could scarcely believe them; he would think he was dreaming. Here, we see a school of the old regime, photographed or represented by drawings so life-like, so picturesque, so expressive where the Japanese artists are skillful; while there we behold the new ones organized after the European manner, except as to certain national usages and regulations which could be preserved without inconvenience. Their whole course of study is borrowed, and the French, German and English methods of instruction have been adopted. For the children, and they are numerous, who do not know how to read Japanese, and who are not edified by the hundreds of copy-books written in Japanese, they take care to address the sight and thus make a start according to the new method. An interesting series of images or pictures on paper and cloth assists us in understanding all the exercises of the class; and, which besides, the reports of the Japa-

nese government, published in English, explain more methodically. The latest improvements in our methods of teaching reading are now applied to the Japanese language. In place of a page or a chart representing only letters and syllables, a sight quite unattractive to a child, they show him in regard to each letter and word a beautiful little picture of the thing which the word represents. Thus are lessons on things ingeniously introduced in teaching the A B C's. This kind of object teaching is continued much beyond the mere elements. The Japanese, who at the last Expositions took so lively an interest in the collections of natural history in the form of pictures, such as those of Ach. Comte in France, Schreiber in Germany and Wettotein in Switzerland have since performed some marvelous work in this direction. They have now similar pictures, and we see here animals and plants common in Japan, but unknown to us, represented in this attractive way before our astonished eyes.

Some schools in Japan have already substituted benches, more or less perfect, in place of the primitive mode according to which masters and scholars seated themselves on the ground after the manner of tailors on a table. The teaching of gymnastics, with halting-places, bars, beams and trapeze, is shown by several representations as faithful and more artistic than if photographed. And further, we must name some things which we had not expected to find among the Japanese: apparatus for mental and written arithmetic, counters after the manner of the Russian and French, maps, pictures representing the different trades, sometimes caricatured, and intermixed with an element of the humorous, especially when they concern us Europeans; for we who are good friends of Japan can not now shut their eyes to our faults and peculiarities any more than they ours to theirs. But all this can hardly be described; it must be seen to be understood, and then perhaps the public will begin to realize that it may be a question as to where the next great International Exposition shall be held, after Paris . . . to Japan? Who knows?

I desire to speak of the exhibition made by Canada, but this letter is already too long. Besides, Canada occupies in the educational department of the Exposition a place too important not to be studied by itself. Its affinities and its differences with the United States of America are such that we can comprehend more quickly and better its exhibition when we shall be familiar with that of the United States. Commencing then our voyage of explanation with the latter country, we will end it by a visit to our ancient compatriots on the borders of the St. Lawrence.

ARTICLE SECOND.

THE Educational Exposition of the United States does not present itself as we would be tempted to believe, or at least desire, under the form of a complete whole, united and methodical. It is composed of detached pieces, it is unequal and diverse, without unity of principle, plan, or procedure.

The central Federal Government is represented only by the exhibit made by the Bureau of Education at Washington, an establishment *sui generis*, to which we have nothing analogous in Europe. This Bureau is only a centre of information, of statistics of general and special regulations concerning instruction. Thanks to this proper limitation, the Bureau of Education exercises, at least indirectly, a certain influence upon the progress of public educational institutions. But these institutions do not depend upon it; education is not a federal concern, it is not even a concern of each state in particular, it rather belongs to the cities and counties; that is to say, the administration of school affairs is mainly in the hands of local authorities, rural and urban. It is also very difficult to establish a comparison: I do not only mean one state with another, but between particular counties and districts, and those that surround them. There exists, generally in each district, a school committee or board of school directors, a sort of municipal council, exclusively concerned with educational affairs, and elected by the citizens. This school board may administer directly and jointly all the schools; it may organize itself into sections that work separately; or it may appoint a superintendent of public schools or several superintendents, and place in their hands different parts of the school administration. The Exposition was not governed by any general regulations, by any plan of organization; all the central authorities did was to issue a summary of rules concerning the selection of scholars' work, of which we shall speak further on.

Naturally, in such a state of things, of which no one should slight the immense advantage, each state, each county, each

city took counsel only of its own tastes and its own ideas as to what was proper in the organization of an educational exhibition. Let us notice, first, with regret, those that absented themselves from the exhibition, and they are very numerous. They include Virginia and all the states of the South, except a few of the schools of New Orleans. Another whose absence more than one French reader will fail to understand is the state and city of New York, scarcely represented at all, except by some reports, etc., in the Government Department.

The Exposition is then essentially composed of the states of the North and West. Pennsylvania, within whose jurisdiction is the seat of the grand Centennial, has judged it to be her duty to give to her educational exhibit considerable proportions. She has built for this purpose a vast pavilion, and completely filled it with the products of her schools, public and private. With our French ideas, we expected to find there, in the first rank and with the grandest display, the city of Philadelphia. She is there in fact, represented by a report of the board of education and some contributions from her schools, from Girard College in particular, a grand institution, founded forty years ago by one of our countrymen for the care and instruction of orphans. But this representation gives no idea of the number, the importance and the progress of the city's educational institutions. Even a walk in the city will convince one how much the exhibit made is below the reality. The other great cities of the state have taken more care to present themselves in a favorable light, and many rural schools have also honored themselves by contributing their contingent, which possesses more than ordinary interest.

The other states making exhibits limit themselves to a representation more summary. The exhibit of Massachusetts, and of Boston in particular, is one of the richest. The rest of the states of the North and East are grouped in a gallery, too narrow, but answering the purpose, in the central part of of the Main Building. Here are the states of Connecticut, New Hampshire, Maine, Rhode Island, New Jersey, occupying one half of the gallery; and in the other half are found Illinois, Ohio, Indiana, Wisconsin, Michigan, Iowa and Missouri. Maryland, or at least Baltimore, occupies the centre of the structure. This topographical description is not useless to give an idea of the scattered form in which American education presents itself to our examination.

If now we seek some general characteristics, some salient points which may be common to all parts of this exhibition, the first which strikes us is the spirit of sincerity, the honest intention, which has controlled the work of preparation and organization. The officers of the Centennial, the superintendents of education in the states, in counties and cities, made laudable efforts to secure a truthful exhibition, and not an exhibition of mere show. Strict but reasonable regulations were imposed upon exhibitors, that is, upon the teachers who supervised the preparation of the scholars' work. Instructions were given that each paper presented by a scholar should contain his name and age, and indicate his class and the time he had been in school. Further, if the class is not represented entire, the teacher is required to say what proportion of the scholars is represented in the papers selected to be forwarded. He is also required to give the total number of scholars in the class, and their *mean age*. In fine, the teacher and scholar attest, each on his side, that the work was done without aid or communication, whether as a part of a regular trimestrial or semestrial examination, or specially in view of the Centennial.

As much as teachers and school officials desired to prescribe exact regulations for the preparation of their exhibits, they sent no reports gotten up expressly for the Exposition, but in their place, forwarded the annual reports which each state and each city regularly publishes. They add only for the purposes of the Exposition and for commercial reasons, many photographs of schoolhouses, interior views and pictures of school furniture, educational museums, exercises on the blackboard, all the scholars of the schools grouped in classes; in brief, everything is shown that can be represented to the eyes. In several states they have presented the photographs of scholars of the Normal Schools and of High Schools in connection with their compositions.

Let us freely acknowledge, then, in the beginning, that whatever may be the intrinsic merit of all that we are about to pass in hasty review, this Exposition is not a glorification even of the United States. It shows without doubt the good rather than the bad; but the bad even there is no attempt to hide. It furnishes all the elements for forming a correct judgment, for and against; it calls out, it provokes discussion; it enables us to measure the effort made and its results; to compare the one

with the other; to form a just idea of what has been done and what remains to be accomplished. In all this, it is worthy of a free people; it inspires faith in the truth, confidence in the good sense of the people, love of progress promoted by free discussion. And these characteristics alone are sufficient to awaken in us esteem and sympathy.

Let us survey the principal exhibits we have enumerated, by commencing with that of Pennsylvania.

In doing so we enter a vast pavilion of an octagonal shape, which itself, to the end that it may afford a great extent of wall surface, envelopes an interior octagon formed by partitions. The centre is occupied by an exhibition of educational material, furniture, apparatus, books, and the walls of the partitions are hung with maps and pictures. All the circumference, that is to say, all the space between the partition and the outside wall, is divided into segments, corresponding to the different sides of the octagon, and filled by the exhibits of different schools from the Kindergarten to the University.

The educational material of Pennsylvania will serve as a type for the whole American Exposition; not that this state has served as a model for the others, but the processes commonly accepted are at present so uniform in a general way, that differences in the minor details are of little interest.

Right or wrong, it is an idea generally entertained in the United States, that instead of a bench to sit upon with others, each child should have his own seat or chair. So many scholars, so many desks. In places where this plan is not carried out, it is followed, and sooner or later, it will be extended to the smallest of the rural schools. This single seat or chair is fastened, not at the table placed in front, but to that placed behind, so that each scholar has for a back and a support the desk of the scholar behind him. This plan would evidently not be without inconvenience in our eyes. We think at once of the thousand little tricks which in our country one scholar would play upon another. Are American scholars less mischievous or playful than others? Or are their teachers a little more indulgent? This is a question which we have not carefully weighed. Everywhere they declare themselves satisfied with it. It is true they endeavor to improve the plan in many ways. The seat of the scholar is often movable; it is attached to its support by hinges, by which it can be raised when the scholar desires to stand upright. In other plans, it is the top of the desk that can be set upright, and be made to work up and down. The same care is taken in the construction of the desk for the teacher. Several manufacturers exhibit methods of providing a substitute for this desk, at least when hearing lessons in certain branches. They furnish the teacher with an arm-chair, to one of the arms of which they attach a kind of turning leaf, sufficiently large to hold a few books and papers; and he may either place them on the leaf before him or hold them in his hand while the leaf supports his arm. This arrangement may have its advantages in America where both teachers and scholars change places several times in a day; especially in large graded schools, when they go to what they call "a recitation" in Geography in one room, in Arithmetic in another, independently of the general and collective lessons which are given in the main room. Let us hasten to add that all this material which attracts us by its elegance and richness, is furnished in America at a price very moderate. To lessen, as they allege, as much as possible the expense of the hand work, they replace the wood wherever they can with brass and iron. Generally, it is only the top of the desk and the horizontal part of the seat that are of wood; all the uprights and all the cross-pieces are of metal.

EXPERIMENTAL PHYSICS.

PRACTICAL TEACHING OF PHYSICS IN SCHOOLS.

IN recent times so many important additions have been made to our knowledge of Heat and Electricity, that a new impulse has been given to the study of Physics, to original research in it, and to the old controversy how far and in what manner the teaching of Experimental Physics can or should be made an inseparable portion of a system of National Education. Those who take a professional interest in any branch of Physics, and make its pursuit or its teaching the business of their lives, urge the claims of Physics to be placed on an equal footing with Writing, Reading and Arithmetic, as an educational subject, principally upon two grounds. First, they maintain that Physics holds the foremost position as a means of developing the various functions of the human intellect; in other words, of best furthering the ultimate aims of general education. Attention, memory, judgment, imagination, are alike aroused, brightened and sharpened, by an early individual ac-

* Paper read by B. Loewy, Esquire, before the College of Preceptors, England.

quaintance with natural phenomena. In proof of this they point to the history of philosophy and the literature of all civilized nations. On every page which preserves the teaching of the ancient Greek philosophers, and of the great thinkers of succeeding times, we find physical phenomena taken as starting points, or used as illustrations of profound metaphysical doctrines; and the very downfall of philosophical systems coincides exactly with the times when the onward progress of physical sciences showed the Physics of the ancients to be either altogether wrong, or their facts wrongly interpreted. But the greatest support for this recommendation of Physics is derived from the fact that no kind of human knowledge is so intimately connected with our earliest experiences. The very growth of the faculties of a child depends on physical phenomena. As soon as its eyes are opened it is a physical observer, and soon, though unconsciously, becomes a physical experimenter, the range of its experiments constantly extending as the child grows. Each moment in the very earliest life adds to the clearness of the primary conceptions, which are at first confused and incorrect. The child soon learns to distinguish between solid and liquid, between hot and cold bodies, between light and darkness. The ear at the same time lays in a store of experiences on sound. The years of boyhood enrich the amount of physical knowledge immensely, and by a thousand instances, each of which is nothing else but a physical experiment, the boy becomes acquainted with a vast range of physical facts. He experiments on the weight, hardness, rigidity of bodies; on the rebound of a marble or a cricket-ball, on the motion of bodies projected in different ways: he learns music, or is delighted with the echo of the mountains or forest; he makes experiments on reflection and refraction of light; observes colors, studies the effect of a burning glass, plays with small magnets, and rubs sealing-wax on other bodies to observe electrical attraction. These experiences possess, of course, no inherent connection; the boy *sees* merely, he does not think, or thinks erroneously, but there is stored up in this manner a vast material, even in the dullest mind, on which to work, so as to bring out our highest faculties. In not one of the sciences which have the study of a natural phenomenon for its object, stands the teacher upon so well prepared a ground for the purpose of education—a ground which requires only conscientious labor to bring forth the best and most valuable of fruits.

But it is also urged upon another ground, of a more utilitarian character, that Physics—and here I must include Chemistry—should form widespread subjects of education. The present century has seen discoveries in Physics which have not only exerted a most decisive and favorable influence upon our whole culture, but which have led to so great and novel general principles in Physics that those who are best able to judge of the range of these principles express an opinion that we are only at the beginning of a great era of still more astounding discoveries. That facts and principles of so vast promise and importance should, by means of the various channels of national education, become the common possession of all classes, has very naturally been the most anxious desire not only of distinguished men of science, but also of enlightened statesmen over the civilized world; for it is seen at once that a sound knowledge of these facts and principles would most probably stir up mankind to make new exertions for discovering still unknown realms of science.

It is only just to say that these claims of Physics to be one of the recognized subjects of education, have not been utterly disregarded in this country. The number of science schools where Physics form a prominent subject, of science teachers, and of youthful students, is undoubtedly, though very slowly, increasing; and something is done by Government and by private support to advance physical research. But has the teaching of Physics so far really fulfilled the expectations and promises of those to whose opinions I have briefly alluded? It is far too early to answer this question; but if the value of the knowledge of Physics imparted in our schools is to be judged from the published results of different examinations carried on for the purpose of testing the amount of general education attained by the candidates, we should arrive at a most disheartening conviction. The average number of pupils who present themselves in Experimental Physics at this College is never more than between 4 and 5 per cent. of the total number of pupils examined at each examination; but a worse feature in the case is that out of 100 pupils who take up Physics only 3 or 4 give accurate answers to some of the proposed questions; 20 or 30 per cent. give answers bearing in a very vague manner on the question. The remainder are mostly totally unacquainted with the subject. Glance again at this result as a whole, and it comes to this, that out of 1500 boys and girls only about three are able to give a correct answer to a few simple questions about natural phenomena which can be observed and experimented on every day in every place, and should be so studied in every school. At the London University the number of failures in "Natural Philosophy" is a striking feature in the Matriculation examination, being usually as much as the failures in three other subjects taken together, and nearly always greater than the number of failures in any other subject. At this examination the number of questions set to the candidates has recently been swelled to sixteen; and if, as I understand, correct answers to two, or at most three, of these sixteen questions qualify a candidate to pass, the expectations of the examiners have sunk very low indeed.

Now, if we admit that Physics is a subject of great importance from an educational as well as a material point of view—and no one will probably be prepared to deny this presumption—the time has clearly arrived when teachers should, without delay, ascertain the present state of physical science teaching, investigate the causes of such strikingly unsatisfactory results as I have sketched in the few instances that have come within my knowledge, make further inquiries whether there exist other facts connected with the question of a more hopeful nature, and mutually exchange their experiences; and it is only in the light of a communication to you of my own personal experience as a teacher of Experimental Physics that I wish you to consider the following remarks and suggestions on the subject.

There are at present three different methods of teaching Physics principally in use. The first of these consists in purely oral instruction. The teacher states some physical fact, and elicits perhaps by his questions some illustrations of the fact from the individual experience and recollections of his pupils. As a mere mental exercise nothing could be said against this method, which, however, is equally applicable to history, geography, or in fact any kind of knowledge. But a fact in Physics differs in this precisely from all other facts, that our own senses

supply the only evidence for its truth. It follows that the chief aim of the teaching of Physics must naturally be solely to train our senses so as to perceive the facts, and then to show how to separate the accidental from the essential, to connect effects with their causes, and thus to see not only the truth in a single fact, but the agreement of many facts in one definite principle, and so to lead the mind to the recognition of that one principle, or law of nature, which embraces all the solitary facts. No mere description of physical facts would ever make a discoverer; indeed, it is well known that such a method of learning something about physical facts has at all times produced considerable harm. The class of projectors and sham inventors is principally recruited from mere readers of books on Physics; their conclusions are derived from erroneous ideas about facts which they have never really seen, and are naturally of a kind to vanish in the air when put to the test of actual experiment. A method of teaching Physics without the basis of experiment stands thus really in direct contradiction with its essential purpose. As a matter of fact such a mode of teaching is utterly tedious to learners; it must lead to errors and misunderstandings; and moreover it is extremely limited in its range, because many facts and phenomena are quite beyond all comprehension, unless they are perceived by the senses. It appears from the examination papers which are presented to me from time to time at this college, that such a method is unfortunately still pursued in many schools; the confusion produced in the mind of the pupils of these schools manifests itself in every statement, and stands in remarkable contrast with the clear and truthful answers given by those few who have obviously seen what they describe. Written examinations are not a very high test of knowledge attained; but they prove something, and, as matters are, we are bound to accept what they prove.

A second method consists in oral instruction by lectures, illustrated by experiments performed by the teacher before the whole class. At first sight this seems to be an irreproachable method, and undoubtedly it is the best and only one by means of which some information on physical phenomena can be conveyed to large audiences. Nor seems there any other way of exhibiting before a body of students or educated people some result of recent discovery, or giving them a connected exposition of some great principle, with the leading steps or precursory experiments that have prepared its adoption or established its power. But I fail altogether to see its advantage as a school method. We do not teach writing, reading, or arithmetic, by confining ourselves to writing letters or sentences on a blackboard, or by reading the alphabet or a page out of a book before our classes, or by showing how a sum in arithmetic is done. We do all these things; but our pupils learn how to write and read, and so on, only by repeating over and over again for themselves what the teacher has shown. The tediousness of the lecturing process before a class of boys or girls is notorious; and in a lecture on Physics especially, as every conscientious teacher will admit who has ever attempted such a lecture, the natural vivacity and curiosity of youthful minds directs their whole attention so much to the apparatus displayed on the table, and finally to the experiment, that the verbal instruction is only very partially listened to; and I have over and over convinced myself that the instruction is taken as a kind of bitter pill, and the experiment as its coating of jam. It is undoubtedly true, that by performing one or two experiments illustrative of some principle, and by indefatigable questioning and cross-questioning, knowledge of that principle may be ineradicably established in half the members of a class; but the other half, through want of attention, seems utterly incapable of learning anything about the subject, and gradually, more and more, the work of the teacher fails to effect uniform progress.

We might disregard this want of complete success, if our aim in teaching Physics were nothing else but to demonstrate and impress upon our pupils a certain number of physical facts or laws; but surely it is far more than mere pieces of knowledge which we are anxious to give to our boys and girls during their school years. We wish to train their senses and their intellects, we endeavor to guide and direct their powers of volition to the right ends, and we are working for this—that their emotional and moral life may be in accordance with the highest possible standard. How can we possibly proceed with a greater certainty of success in such a work than by bringing our youthful charges face to face with nature itself? Let them arouse for themselves those forces which man has discovered and uses for his benefit. Let each of them learn to put questions to nature in a proper manner, calculated to receive answers; show them how to read these answers for themselves; let them put answer to answer, and thus learn from nature itself what no human lips can ever teach so well.

This can, in my opinion, only be accomplished by a method of teaching altogether different from those two which I have briefly sketched. There is a third method of teaching Physics in use, especially at Universities, a modification of which seems to me particularly suited for elementary instruction. Anybody who desires to become thoroughly acquainted with some branch of Physics or of Chemistry, or in fact any of the other branches of the Natural Sciences, either from an individual inclination for and interest in the subject, or for some special definite professional purpose, does not trust to the reading of books, nor does he depend on mere lecture courses with illustrative experiments. He considers books and lectures as useful adjuncts to his studies, but he essentially trusts to the individual practical work which he may be enabled to do under the guidance of experienced teachers. He devotes a considerable time, often three or four years, to regular work in a laboratory, where he learns how to observe, how to measure, how to compute his results, and how to deduce physical facts from his work. It is not our object to make our pupils in schools physical experimenters, no more than we aim at making a writing master, or a public reader, or a professor of mathematics, of every child to whom we teach writing, reading, and arithmetic. The fact proves that practical work is considered to be the only real method of obtaining the knowledge desired; and experience shows abundantly that men who have done a certain amount of practical work in physical or chemical laboratories will stand above every mere book student, however wide his range of treating any problem, not of science alone, but of life itself. He who has ever done practical science work in a genuine scientific manner will, in my opinion, be a different and a more useful man than the most profound scientific library hermit. That so great advantages should be rendered available also to those who make their first elementary steps in acquiring knowledge, has been the wish of every earnest teacher; but unfortunately it has, so far, generally

been considered that there are many serious obstacles in the way of introducing in our public and private schools systematic practical work to be done by the pupils there. I propose to show how these difficulties may be diminished or entirely overcome, and for this purpose it may be best to describe, as far as possible on an occasion like the present, the system of teaching Experimental Physics, and related branches of the Experimental Sciences, which has been adopted, and is more worked out and perfected, at the London International College since the beginning of 1873.

Although differences of considerable weight in devising a plan of teaching must naturally exist in the scope of education, and many other circumstances, between this College and other private or public schools and educational establishments, still many points of agreement present themselves, especially in respect of the teaching of Physics; and I shall speak more of pupils having a certain average age than as being members of a definite class or form, so as to exclude at once a striking feature of dissimilarity.

Let us then begin our work with pupils who have reached the age of ten, and who can fairly read, write, and do a simple sum in arithmetic. Now is the time to rouse their attention to the existence of an infinite variety of beautiful forms, of periodic events, of great movements around us; and to show that it is not only worth our while to observe, but there must be method in every observation, and that such observations lead to general conclusions of great importance. Ten, eleven—these are the years for Botany, Zoology, and Physical Geography, where, from the smallest to the grandest scale on which Nature works, the most striking examples should be selected and displayed or pointed out by the teacher. Physical experiment is here not essential, but a beginning should be made to illustrate some great principle; and I shall here at once indicate the general way of superintending and arranging the experiments. An hour, say in every month, being specially appointed for experiments in the youngest class, let me suppose that you wish to illustrate the following three facts bearing on Physical Geography and Botany: 1st, the solvent action of water, the dependence of this action on temperature, and on the nature of the substance dissolved; 2d, the spherical form assumed by a liquid when withdrawn from the action of external forces; 3d, the effect of endosmose on two liquids of different density separated by a membrane. These three sets of experiments may precede or follow that stage in Physical Geography where the action of rivers or springs, or the figure of the earth, and in Botany where the ascent of sap in plants, is under consideration. Or the experiments may form some physical exercises quite by themselves, and merely used for reference. The plan for working now suggested is the same for boys of all ages; with this difference, that after the age of twelve, experiments are made constantly during every hour devoted to the subject. Divide your class into groups of two at most, and after assigning to each a definite place for working, provide each group with an independent experiment by placing in their hands slips of paper on which definite but short directions for its performance are given. Let each boy copy out your directions for the experiment he has to do in a small note book with pencil, and at the end of his copy make out for himself a list of the things required for it. Your directions are, out of school hours, again to be copied out fairly with ink into a special book, and a little sketch of the arrangement of the experiment is to be added, however unsightly at first the illustration may be turned out. If possible, let each boy answer at the end of his fair copy, in his own words, this question: What had I to show by this experiment? While the boys are copying out their directions, make a list, in a special book, of the names of the boys in each group, with the number of the experiment supplied to each. As each group has to perform each experiment, such a list is absolutely required for a systematic teaching. To prevent all unnecessary questioning and loss of time after the experiment is written out, place your whole store of glasses, tubing, and in fact everything necessary for work, so as to be readily and freely accessible to the boys.

Next, whenever any single question is asked as to the name of a utensil, or where it is to be found—and a storm of such questions is sure to roar around you as soon as experiments are written out for the first time, all pupils being mostly under the same difficulty—answer each question as if coming from the whole class. Take them all around, show them where everything is kept, state the name of each object—and, for example what you mean by a tube ¼ of an inch wide or ⅓ of an inch wide, or a flask capable of holding 2 oz., 3 oz. etc., or water, or a small beaker-glass, a middle-sized, or a large one; and declare at the same time that each boy has to carry himself every piece of apparatus required to his place, with the exception of chemicals, to which, for obvious reasons, access should not be allowed to boys at all, unless they are of more advanced age, and their character for carefulness is well established. All chemicals should be carried from the place where they are kept and restored again under the immediate superintendence of the teacher; but with this exception he should reserve his whole attention to the close observation of each group. The utmost vigilance will be required; he must be constantly moving about, and have his eyes everywhere, directing the attention of each group to their work, to the precautions to be observed in order to avoid failure, to casual explanations in order to extend the views of his pupils, and especially holding constantly before each worker the definite fact which his experiment is to prove. Each group should, for that purpose, be kept away from every other as far as possible. Every school-room can be very readily converted into an experimental work-room. The seats and flat tables, or rough planking placed across inclined school desks, the floor even, may be utilized by the scattered groups of workers. As soon as each group has completed the experiment assigned to it, it is to report itself to the teacher, who at once inspects their place, directs the removal and cleansing of the utensils used, and supplies another experiment.

Let me now use the three sets of facts previously mentioned to give a few examples of the directions to be given. These should be as follows for the different experiments to be made by each group successively.

Experiment 1.—Before you are two bottles containing clear water, marked 1 and 2. Pour out a little from No. 1, about ¼ of a small test tubeful, into a small porcelain dish, and heat it over the lamp until it is boiled away. Place the dish aside and near you. Take another dish, pour in water from bottle No. 2, and heat it as before. When all the water is boiled away, inspect the two dishes. The first dish is quite clean, but the water from bottle 2 left a white

substance behind. Thus water may be as clear as perfectly pure water, and yet contain substances which are dissolved in it.

Experiment 2.—Pour a little water from the bottle marked No. 1 into a small china dish, and heat it until the water is boiled away. Inspect the dish. There is nothing left behind in it. Pour now some of the same water into a small beaker-glass, and drop a little lime into it. Stir the water gently, and filter it through a funnel into another beaker-glass. The water runs through the filter perfectly clear. Pour a little of this clear water into a china dish and boil it away. There will be white lime left behind. Thus pure water dissolves lime when it comes in contact with it.

The directions to a few more experiments, which every teacher can easily formulate for himself, would now show how to dissolve any two *different* salts in equal quantities of water, so as to discover differences of solubility, to dissolve a given substance in cold water to saturation, and to add then more of the substance to this saturated solution to cool until crystals are deposited, to distil pure water from a solution of a salt, and finally to allow of the slow evaporation of any solution until all the water has disappeared and the solid in solution is deposited. We should thus employ six or seven groups with experiments, each of which leads to an important independent fact, while the performance of the whole set must establish in the mind of the pupil a clear conception of a great principle, and of the various steps by which it is obtained, while the concurrent individual instruction of the teacher leads to a comprehension of its importance and bearing. For the two experiments on the globular form of liquids and on endosmose, the directions would be as follows. For the former: Fill a small beaker-glass first with water and then with alcohol, and mix both liquids together by stirring them in a large beaker-glass. Take up with the end of a pipette a small drop of oil from the bottle by closing the upper end with the thumb and bring the end of the tube into the middle of the liquid. See if the drop of oil remains in the middle. If it sinks, add a very little water until the drop floats in the liquid; if it rises, add a little alcohol. When the small drop neither rises nor sinks, suck up some more oil by the pipette, close the upper end, and immerse its lower end to about the middle of the mixture. Allow the oil to escape, and a globe of oil will be produced. Liquids have thus a tendency to assume a definite form, namely that of a sphere.

Again, for the experiment on endosmose: Dissolve as much sugar as you can in a small beaker-glass half filled with hot water, until the solution is thick and syrupy. Take a glass tube 6 inches long, or a test tube of which the bottom, is broken, and tie a piece of thin bladder over the mouth of it. Fix the tube into a retort stand, and immerse the closed end of the tube two inches deep in water contained in a beaker. Pour the solution of sugar through the open end into the tube until it stands inside on a level with the water outside. Taste the water around the tube: it tastes like pure water. Leave the arrangement to stand until the next day. You will then find that the liquid in the tube has risen, and the water outside will have a sweetish taste. Thus the thinner liquid, the water, passes into the tube, and the thicker fluid, the syrup, passes out of it; moreover, the thinner liquid passes more rapidly through the membrane than the thicker, for the liquid in the tube stands at a higher level.

These few examples of the experimental directions will be quite sufficient for my purpose. They show that every teacher need only range through our physical text-books to find ample store of facts, which, with very little exertion, may be prepared for class use as so many simple experiments to be performed by the pupils.

I will now presume that the class of beginners ripens to the age of twelve, and is promoted to a higher class. Regular practical work in Experimental Physics, and also in Chemistry, should now begin, and not end until the boy leaves school. The reading and learning of text-books should be reduced to a minimum, and made purely auxiliary to the practical work. Lecturing, if considered at all necessary, should be confined to a certain range of physical facts, in which it is perhaps still an open question whether they are not more adapted for being exhibited and explained before a larger audience than for being more closely studied by the individual; for example, certain phenomena of light, sound, and especially the various grander effects of electricity. But if we wish fairly to try whether Experimental Physics will have that powerful influence on our individual culture which some of its results have had on modern civilization and the very aspect of human society, then we must make the trial in an honest and truthful spirit, and truth resides only in the experiments. Having already given all the more important indications of the details of the experimental school method, I proceed to state the broad principles which should form the basis of such experimental teaching in all classes of a school.

First then, each teacher who feels inclined to adopt some such method as I propose, should first of all learn carefully to perform for himself a number of simple physical experiments which he has selected from various sources. He should write out his own directions; these will afterwards serve for his pupils. He should also most assiduously think out *everything* that can be learned from each particular experiment, and never place any experiment in the hands of a pupil unless he is capable himself, from actual experience, to perform it with neatness and certainty. His stock of experimental experience may be small in the beginning, but it will grow with wonderful rapidity as he will be pushed forwards to unceasing activity by his classes constantly eager for new experiments.

Next, the experiments to be performed with boys from twelve to fourteen years old, say during a year or two, should be selected so as to range only over fundamental facts of Physics. Taking the following headings of these fundamental facts in a portion of Experimental Physics, and assuming that each pupil performs one or two well-selected experiments under each heading, he will have gained a clear idea what particular physical facts are classified under these headings, and have learned something about the definitions, technical terms, and range of Physics. These headings are, for Light, Heat, Magnetism, and Electricity, the following:

Light.—Formation of Shadows—Reflection by plane and spherical mirrors—Refraction—Lenses—Dispersion—The Spectrum—The Microscope—The Telescope—Binocular Vision.

Heat.—Expansion—The graduation of the Thermometer—Melting and Freezing—Convection—Ebullition—Evaporation—Condensation of Vapor—Tension of Vapor—Radiation—Conduction—Latent Heat—Specific Heat.

Magnetism.—Magnetization—Induction—Effects of Terrestrial Magnetism.

Electricity.—Attraction and Repulsion—Conductors and Non-conductors—Induction—The Electroscope—The Electrophorus—The production of a Galvanic Current—Effects of a Galvanic Current—Action of Currents upon each other—Induction of Currents.

The experiments under each head should be selected for their simplicity; the most simple experiment is at this stage of learning generally the most instructive and intelligible. In many cases the pupils may be directed to construct for themselves, with inexpensive materials, important experimental apparatus. Nevertheless, a small stock of necessary things to start with will be required in each school. The current expenditure involved in experimental teaching should be provided for in the same manner as the expenditure of boys for books, stationery, etc.

One great aim in experimental class-work should be that the pupils may early arrive at a conviction of the uniformity of the effects produced in the universe by the same causes acting under the same surrounding circumstances. For this purpose it might appear requisite to conclude most experiments with a laborious computation, of which the result is some physical numerical constant. The close agreement of such constants, as derived from independent sets of experiments, convinces naturally of the uniformity of the connection in nature between cause and effect. But in school experiments an attempt to arrive at constants ends invariably either in entire failure, or in the necessity of devoting a considerable time to each of the experiments. Hence we should proceed in this case on a different plan. One or two examples will show better what I mean. Let me suppose that an experiment is made on the specific heat of mercury in the following manner: A pound of mercury at some high temperature, which we observe, is thrown into a pound of water at a lower temperature. We observe the temperature of the mixture as soon as the rise of temperature ceases, and by thus knowing how much heat the mercury has given up to the water, we may easily calculate the specific heat of mercury. If we compare our result with the number which represents this physical constant, the specific heat of mercury, we shall find ourselves far from the truth, for reasons which cannot be so completely explained to beginners as to satisfy them. Similarly, suppose we were to pass some steam from a flask which contains boiling water into a bottle containing cold water, then the temperature of this water will rise, and by certain simple principles we may from our experiment proceed to calculate the latent heat of steam. But our result will considerably differ from the truth, and the results of your pupils, which should be compared with one another from time to time, will not at all agree with one another; and this produces an unsatisfactory impression of doubt and uncertainty in them. But if each of your pupils weighs out his water and his mercury in the first experiment with the utmost exactitude in the same vessels, if the temperature of the water is made to be exactly the same by each, and also the mercury has in every experiment been heated to that temperature which you gave in your written directions to each experimenter, and if the mixture is made in the same bottle by all successively, you will find that nearly the whole class will obtain the same result. Similarly, if in the second experiment the temperature of the water which receives the steam and its quantity at starting is for all experimenters prescribed, it will be found that in every experiment, provided the same vessels are used throughout, a definite quantity of steam condensed produces a definite rise of temperature in the receiving vessel.

The same principle holds good in every kind of class experiments. Avoid unnecessary discrepancies by a uniform method of working, carefully considered beforehand and attentively carried out. The agreement of the results thus obtained by a whole class fills each member of it with indescribable delight, with a steadily growing confidence in and renewed longing for experimental study, and a sense of the importance of his work. On the other hand, the uniform discrepancy of these results from the truth allows you an opportunity of indicating in general terms to the whole class the sources of error, which are avoided in more delicately conducted experiments, and which in their case produced collectively a *uniform* deviation from the correct result.

The present moment, when a great exhibition of scientific instruments, containing the best educational apparatus for the teaching of Physics used amongst the most advanced nations may be seen in this city, and studied and examined by teachers for months to come, appears to me particularly fortunate and opportune for urging upon you, speaking as a teacher to teachers, the necessity of not resting until Experimental Physics has assumed amongst the recognized subjects of national education that position which is due to it, and which it will undoubtedly assume when it is taught and learned by sounder methods than those heretofore pursued.

Educational Times, London.

A PLEA FOR PURE AIR.

GEO. G GROFF, A. M.

A PEOPLE, to be truly great and good, should breathe pure air and drink crystal water, for they give to men strong bodies and clear minds, with true, noble and high aspirations; while impure air and turbid water lower the vitality of the body, and degrade the thoughts and hopes of the mind. It is said to be a fact that American churches, schools and homes are poorly ventilated. If this be true, and we know it to be partially so, then there is need of reform. Let us, for a moment, consider the importance of ventilation and pure air.

What do we breathe? A gas called air, composed of two elementary bodies, oxygen and hydrogen, mixed together in the proportion of one-fifth oxygen to four-fifths of nitrogen. This air is a mixture, and not a compound, and surrounds the earth to a height of from fifty to five hundred miles, being very rare above two or three miles.

The oxygen is the life-sustainer of men and animals, but cannot be taken in a pure

state any length of time, as it consumes the tissues too rapidly; hence in nature it is diluted with the gas nitrogen, an inert substance which cannot support life; though it is not poisonous when breathed.

Why do we breathe? Because we find it an absolute necessity. It is a law of our being, involuntarily performed, and which we cannot resist.

By what means do we breathe? Various muscles connected with the respiratory apparatus act upon the walls of the chest in such a way as to enlarge its cavity, and a partial vacuum being produced, the external air rushes in; then, the muscles relaxing, the walls of the chest relapse, and the air is again expelled.

How often do we breathe? About twenty times a minute; 1,200 times an hour; 16,800 a day, and about 9,000,000 times a year. Children newly-born breathe forty-four times per minute; at five years, twenty-six times per minute.

How much do we breathe? About thirty cubic inches at each respiration, 500 cubic feet in twenty-four hours, and 700,000 gallons in a year.

For what purpose do we breathe? That the pure oxygen of the air may enter our lungs, and there meet and remove the impurities brought to that point by the blood.

What changes occur in the air breathed? It loses about five per cent. of its oxygen, which enters into the composition of the body, the gain from this source amounting in twenty-four hours to about one and one-half pounds. The loss of oxygen to the air expired is compensated for by a gain of about five per cent. of a heavy poisonous gas, called carbonic acid gas, the total amount of which given off from the lungs in twenty-four hours amounts to about one and three-quarter pounds. In addition to the carbonic acid, the expired air bears with it vapor of water and effete animal matters. The carbonic acid can be detected by passing the expired air through lime water, when a white precipitate of carbonate of lime will be formed, and if the water be left remaining in a warm room a few hours, it will become putrid from the decomposing animal matters taken off by the water from the air passed through it. It is this decomposing animal matter that causes the horribly offensive odor in ill-ventilated cars at night, and is also perceived in bed-chambers in the morning. It is even more poisonous than the carbonic acid gas.

The air normally contains about twenty-one per cent. of oxygen; when this amount is reduced below ten per cent., it will not support human life. If the amount of carbonic acid exceeds twenty per cent., it also destroys life. Hence for man's well-being he requires an exchange of air in his habitations.

What changes occur in the blood? The blood comes to the lungs from all parts of the body, of a dark venous color, bearing carbonic acid in solution and effete animal matters. They are here set free, and the oxygen from the exterior entering the blood, changes its dark color to a bright scarlet, which goes hence, coursing through the system, giving life and strength.

What harm from breathing impure air? If the air contains too much carbonic acid, the blood cannot be cleansed and oxygenized, and the person becomes dull and stupid; in fact, is slowly poisoned. By breathing air contaminated by effete animal animal matters, fevers of the most dangerous type are likely to result.

What is the effect of breathing dry and heated air? If the air is too dry, it has a tendency to remove an excess of moisture from the blood through the lungs, and thus cause an unnatural dryness of the tissues, which may result in serious organic diseases. Heated air may produce similar results. Dry and heated air very frequently causes headaches.

What is the structure of the lung surface when the blood and air meet? The trachea or windpipe divides into two branches, one of which goes to each lung, and in the lung divides and subdivides into an immense number of subdivisions. The lungs are composed of lobules, and each lobule is composed of exceedingly minute cells or vesicles, called pulmonary cells. The walls of these cells are about one five-thousandth of an inch thick, and upon these walls are spread out the minute ramifications of the blood-vessels. The blood and oxygen do not meet, but communication takes place through these very thin membranes, the carbonic acid and watery vapor passing out and the oxygen passing in. The surface presented by these little cells is in the aggregate very great. It is estimated by different physiologists at from 132 square feet to 2642 square feet, or about eight times the surface of the body by others.

Pure country air contains about four parts of carbonic acid in 10,000. The analysis of the air in three school-rooms showed eighteen ten-thousandths, twenty-three ten-

thousandths and thirty-seven ten-thousandths of carbonic acid respectively. The children in those rooms certainly could not make a very bright appearance. An analysis of the air in several churches gave on an average thirty-six ten-thousandths of carbonic acid. Now this being a heavy gas, and inclined to settle to the floor, have we not an explanation of the phenomena of the children first falling to sleep during the service, then the older members of the congregation; while the preacher, high up in the pulpit, is all the time bright and active, being above the injurious gas?

Let us quote a few historical events to show the effects of impure air. In 1756, in Calcutta, India, 143 persons, English residents, were by the natives thrown into a room twenty feet square, and the door closed. The room contained but two small windows; they were compelled to remain there all night. In the morning 120 were dead; but 23 survived that fearful night, and some of these afterwards died of low fevers. This is known in history as the "Black Hole of Calcutta." Seven years ago, the ship Londonderry met a storm at sea. The passengers became alarmed, and, interfering with the management of the ship, were shut in the cabin. In a few hours one hundred were dead; there was scarcely a survivor; and all because some one did not know, or remember, that men and women required fresh air. In Dublin Hospital, before ventilation was introduced, 3944 persons died in four years; after the introduction of ventilation, the mortality was reduced to less than one-tenth. In the same city, in the lying-in hospital, before ventilation was introduced, one-fifteenth of all patients admitted died; afterwards, one-eightieth. In Glasgow barracks there were fifty-eight cases of fever in two months; after ventilation was introduced, but four cases occurred in eight years. These instances might be almost indefinitely increased, but enough have been mentioned to show that ventilation is a necessity.

How shall we effectively ventilate our homes, churches and schools? Carbonic acid is a heavy gas, therefore it will sink to the floor; the effete animal matter will sink; and it is claimed that we must remove them by flues near the floor. This has been the theory for some time, but in practice it is found imperfect. Others say, these impurities being heated as they leave the lungs, will arise, and hence must be removed near the ceiling; but this in practice also fails of perfect ventilation. The fact is, a portion must be removed at the floor and a portion near the top of the room. Care must always be taken to place the ventilating flues near the chimney, that they may be warmed in winter, else no circulation can be established in them, as experience has amply shown. A room in an ordinary dwelling is very well ventilated by occasionally opening a door, and by this means the air from both the top and bottom of the room is changed.

Shall we ventilate our sleeping apartments by lowering the windows and letting in the cold night air? Night air is pure, and cannot injure a person on that account; but when we are in bed and closely wrapped up, the body is often very warm, and then the cold external air introduced into the delicate lung texture may cause serious injury and disease; moreover, windows being lowered, drafts are liable to ensue, and colds and catarrhs result; and during sleep the vitality of the body being lowered, we do not breathe so frequently, and much less carbonic acid is eliminated, and hence we need a less amount of fresh air. A person can sleep uninjured in any ordinary bedroom, even though there is no provision for ventilation during the night; but the air should be thoroughly changed for several hours during the daytime, and if possible a plentiful supply should be admitted to the room.

School-rooms can be ventilated during intermissions by raising several of the windows and opening the door. Teachers will find this plan to pay most liberally. The children will be brighter, the teacher will be more cheerful and in better mood for work, and altogether the day will pass with fewer of the accustomed school-room jars and troubles. Not only should the school-room be furnished with fresh and pure air, but the teacher should earnestly try to impress upon the students the importance of proper ventilation as one of the most vital hygienic measures, and thus prepare them for lives more useful and happy than they could otherwise be.

And what can we say of ill-ventilated churches? They are certainly monuments of men's stupidity and folly, and stand in direct antagonism to the laws of our Creator. He gave us air, pure and wholesome, to breathe. How, then, can it be possible to lift up the mind in worship and adoration in an atmosphere foul and polluted? Moreover, in crowded assemblies there may be considerable danger of the air becoming

so poisonous as to engender organic disease.

The atmosphere at all times maintains a constant composition. By what forces is this accomplished? By the animal and vegetable kingdoms, which mutually counterbalance each the other. The animal absorbs oxygen from the air, and expires carbonic acid; the plant absorbs the carbonic acid and sets free oxygen for the use of the animal; and thus the process continues, in exact balance, one of the most wondrous provisions in the world for man's happiness.

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CULTURE, OR CRAM?

JAMES RICHARDSON.

DO you approve of giving children the *rationale* of all you teach them?

This question was lately asked by one who doubted the propriety of "explaining things" to children; in other words, of trying to make them understand whatever they are required to learn.

The question touched the very heart of the educational problem. The *yes* or *no*, more or less qualified, which any teacher would reply to it, would determine not only the general character of his teaching, but his whole theory of education—if he had thought enough of his work to have a theory for it. It would show, too, just what proportions of *culture* and *cram* go to make up the education his pupils receive.

Of course there is much in connection with every subject that is, as yet, unexplainable; much of which neither teacher nor pupil can understand the *rationale*. A stone unsupported falls. Any child will recognize the fact. He need not be very old before he can be taught the general conditions of falling. He may be taught that the cause of the falling is called gravitation. But what that cause is, and what its relations are to the other forces of the universe, remains an unsolved problem. No one can explain it. The question which we have taken as a text did not have reference to matters of this nature, but to such as fall within the scope of elementary teaching—the *whys* and *wherefores* of ordinary processes and phenomena. "Is it not often necessary," it was asked, "to require children to commit to memory statements and principles and rules, that they are at the time as incapable of comprehending, as they are the significance of the seventh commandment?"

Probably the majority of successful teachers—as success is commonly estimated—would answer the question with an affirmation. Knowing and understanding they consider wholly independent of each other, their business being entirely with knowledge. They are practical men and women. They believe in no Utopian schemes of education. They know what is required of them, and they do it. The problem set before them to solve is briefly: Given so many boys and girls, so much time, so many pages of this, that, and the other text-book to be transferred to the pupils' memories, so that they shall be able to "stand" the prescribed examination at the end of the term. They accept the conditions, do the work, are accounted faithful, —and their pupils are crammed. They may or may not be sure of the utility of the knowledge so imparted—if it is right to call that knowledge which is not comprehended —but they are sure that such and such results will be required of them, and that the required results can be most easily and surely attained by the method they adopt.

Even if a teacher abhors cram, he cannot always avoid it and do the work demanded of him. He is but a single wheel in a complicated machine set to grind out a definite grist, and so long as he holds his position he cannot act otherwise than as a part of the system. The blame for the bad results of much of our schooling belongs, therefore, not so much to the teacher as to the system which requires such results, and which the right-thinking teachers are individually unable to reform. The standards of the system are false. It confounds knowledge with the verbal representatives of knowledge. It assumes that a child knows a fact or a principle when he can repeat the words used to express it. It considers promptness and precision in parrot-recitation the measure of good teaching, and thus makes the acquisition of verbiage the grand object of primary instruction, and leaves out of sight the development of power and the acquisition of skill in the art of getting knowledge. It begins work in the wrong way, and by largely misdirecting the child's energies, it prevents his truest development and culture. And what is worse than all the rest, it teaches him to think that he knows when he does not know, and prepares him for a life-long delusion with regard to the scope and character of his knowledge. It trains him to rely on other people's assertions when he

ought to use his own senses and judgment. It teaches him to regard authority as the ultimate test of truth; and cultivates in him habits of thought which will practically incapacitate him for an independent pursuit of knowledge by direct personal investigation.

We do not assert that the actual work of all schools, or of any school, is unmitigated cram, but that the popular system of instruction favors cram; and, as the system is more or less thoroughly carried out, discourages culture. The average examination-test may be summed up in the single question: How many pages of how many text-books have you committed to memory this term? A true culture-test would rather ask: How much mental growth have you attained, how much mental power have you acquired, how much skill have you gained in the art of learning? If this were the standard of good teaching, there would be little occasion to ask whether primary instruction should be *memoriter* or rational.

Whatever one's theory of mind may be, the fundamental principles of education remain the same: The beginnings of knowledge come from without; keenness and accuracy of sense-perception, on which keenness and accuracy of thought so much depend, are gained only by a discriminating use of the senses; rational power is developed by reasoning, and so on through the whole range of human capacities. In every case proper use develops and strengthens a faculty; misuse and disuse weaken and destroy it. And to one who believes that the development and training of the faculties of sense and intellect should be the chief aim of primary education, and not the mere storing of the memory with words, every attempt to teach children what they cannot understand will appear mis-timed, absurd, and mischievous; and every failure to make clear to them what they are required to learn and can understand, not less than a criminal neglect of duty. The habit of accepting without comprehending is perhaps the most vicious mental habit to which a pupil can be trained, and every system of education that favors it, in so far does positive harm.

If there were any lack of educational material adapted to the needs and capacities of childhood, the attempt to impose on them matter not so suited would be less reprehensible: but there is no such excuse. The means of true culture are practically unlimited, and always within reach. It is a shame that they are so commonly neglected. Go to any average school, and you will hear children reciting the names of the productions of Otaheite—mere words to them—while they have no true acquaintance with the productions of their own school district. They will tell you what the Geography says of the forests of South America and the minerals of Hindoo-Koosh, and be ignorant of the names and uses of the trees of the nearest wood, or of the rocks they stub their toes on every day. They will tell you in so many words the difference between an absolute and a limited monarchy, and have no conception of the political organization of their native town. They will give you the rule for calculating foreign exchange, and not know how to find the contents of the wood-pile, or the area of their playground. In short, instead of pursuing a wisely directed exploration of the intelligible and near at hand, they are wasting their time in a fruitless study of verbal description of the distant and incomprehensible—at that stage of their education. Tangible results that are measurable by the page, not growth and culture, are the things aimed at; and will be, so long as the popular theory of education prevails and the place of honor is given to *cram.*—*Christian Union.*

STUDIES THAT BEAR DIRECTLY UPON INDUSTRY.

[The article below touches a live question in Pennsylvania, and we commend it to the friends of industrial education.—ED.]

THE educated workman is always and everywhere the best workman. This is true even if the education he has received does not bear directly upon the industry in which he is engaged. Intelligence, natural or acquired, counts even in digging ditches. If the education of the head holds no direct relation to the employment of the hands, it may tend to make the laborer discontented; yet it will enable him, in sundry respects, to do his work easier and better.

But while some studies have only an indirect bearing upon industry, others have a bearing which is direct and decided. For the workman, considered as a workman, the latter are much the more serviceable. They not only enable him to do his work much easier and better, but, by giving it an intellectual element, they cause him to take greater pride and delight in it. He who works like a machine, without thought, may work steadily from one year's end to the other; but it will be,

if not with disgust, at least with stolid indifference. He will take no genuine pride and delight in the labor of his hands, as one so frequently does who works as well with his mind as with his hands, discovering somewhat of the Supreme Intelligence even in the rudest labor.

Just here, we come upon an important educational principle for guidance in the management of public schools. It is this: Other things being equal, those workmen who best understand the rationale of what they are doing, not only can do the most and the best work, but will take the most pride and delight in it. This can be verified by an inspection of those engaged in any pursuit. So there is no danger of educating workmen to an undue dislike of manual labor, provided the education bears *directly* upon the work to be done.

That workmen should take pride and delight in their work is deemed a matter of so great importance by the British government, that it sent, in 1870, a circular letter to its consular agents throughout the world, requesting them to make investigations bearing upon this matter among all classes of workmen. This the consular agents did, and they found that instruction in the underlying principles tended to increase the pride and delight taken by workmen in their work. A great and fertile truth.

Now, chemistry is one of the studies that has a direct and decided bearing upon many human employments. It teaches lessons of great value to farmers, gardeners, cooks, dyers, painters, potters, metal-workers, apothecaries, soap-makers, bleachers, etc., etc. It is at once the most practical and the most wonderful of all the natural sciences. There is no person who would not, at times, find a knowledge of chemistry of direct practical use. Then it introduces the learner into the very workshop of nature, acquainting him with her tools and her processes. It brings him face to face with the facts of the material world, and teaches him how to interrogate nature by experiments; and, in so doing, trains him to observe, to weigh, and to judge, while it gradually brings him to the condition which enables him fully to realize and believe things he cannot see with the bodily eye.

Botany and zoology—the former treating of still life, the latter of animal life—are studies that make direct and valuable contributions to several important human pursuits. Their lesson can be practically applied by all persons engaged in producing alimentary products, and the staples used for clothing. It is to botany that decorative art goes for most of its forms and principles, and so a knowledge of botany is of service to nearly all kinds of manufactures. There is indeed, no one who would not, at times, have occasion to make practical use of the lessons taught by botany and zoology. Then they are studies better adapted than almost any other to the early years of school life. They furnish the best of object lessons for training the faculties of perception and comparison, while no other studies are so well calculated to teach the young learner to classify and to tabulate.

There is also much embraced in physics, "Natural Philosophy," that has direct bearing upon many kinds of labor. Then a knowledge of color is of universal service, even if regarded only from the utilitarian point of view. What shall we say of geometry, when studied for its practical applications as well as for mental discipline? That it is of direct, utilitarian service to every one, but is simply indispensable in all the mechanic arts. If properly treated, it may be made a suitable study for all ages, training the perceptive faculties, the imagination, and the reason. Yet not one person in twenty now receives any systematic instruction in this universally serviceable branch of mathematics. It is arithmetic, arithmetic, and arithmetic.

Finally, there is drawing, and it stands second to no study when we consider its direct influence upon industry. The able French Commission say of it, in their report in 1865, after an extended examination of art and technical (industrial) education throughout France and Europe: "Among all the branches of instruction, which, in different degrees, from the highest to the lowest grade, can contribute to the technical education of either sex, drawing, in all its forms and applications, has been almost unanimously regarded as the one which it is *most important to make common*." Then the commission advise the government that "Drawing, with all its applications to the industrial arts, should be considered as the *principal* means to be employed in technical instruction." We are glad to observe that the same view is rapidly gaining ground in this country. Drawing is also to be greatly esteemed for the mental discipline it confers, since it trains to accurate vision, exercises the inventive powers and the imagination, and gives a taste for the beautiful. As a discipline, or as an industrial instrument, no

other study can take the place of drawing. We have now indicated the different studies, having a direct and decided bearing on the different industries, which must receive, universally, the same consideration that is given to arithmetic and geography, before the public schools can justly claim to meet the present wants of the great body of the people. They are the studies that will give to public instruction the industrial elements so much needed to-day; for they deal with the principles, scientific and artistic, which underlie all industrial pursuits, and impart much of that discipline of the faculties, so essential to one's success in these pursuits. Every person of average capacity who attends school six or eight months a year, from six to sixteen, should be well-grounded in the elements of all these studies; and we believe he can be so grounded without the slightest detriment to his training in other directions. — *N. E. Journal of Education.*

KEEP LIFE IN YOUR SCHOOL.

J. ELLIOT ROSS.

DID you ever stop to think how prosy we naturally become as we grow older? and how that the disparity of ages between teacher and pupils may account for many school-room difficulties? Through boyhood and girlhood there is usually a buoyancy of spirit, a frivolity, a mischievousness, all liable to give trouble in the school-room, which we do not carry across the threshold of our majority. They are characteristic of childhood and youth, and should in a great measure be so regarded. It should be remembered that old heads are out of place on young shoulders.

Many most excellent teachers of the higher grade schools would be utter failures if placed in the lower grades. It is often difficult to wink at little non-essentials which do not exactly come up to our "standard" of strict decorum. Instead of expecting these things, we allow them to surprise us, and we lay them up against the child thus unintentionally offending; we count them all as parts of a burden, and soon one of them becomes "the last straw" which "breaks the camel's back," and not infrequently does little less with the pupil's back. Our dear old folks at home we are often inclined to consider crabbed, fretful, intolerant, unsympathizing; the children dare not romp, they dare not sing; there must be no flow of spirits; quietness is the order of the day with them. But after all, they are not crabbed, fretful, etc., they are simply *natural.* Have you ever looked at it in that light? If not, and you live long enough, you will experience the truth of our position.

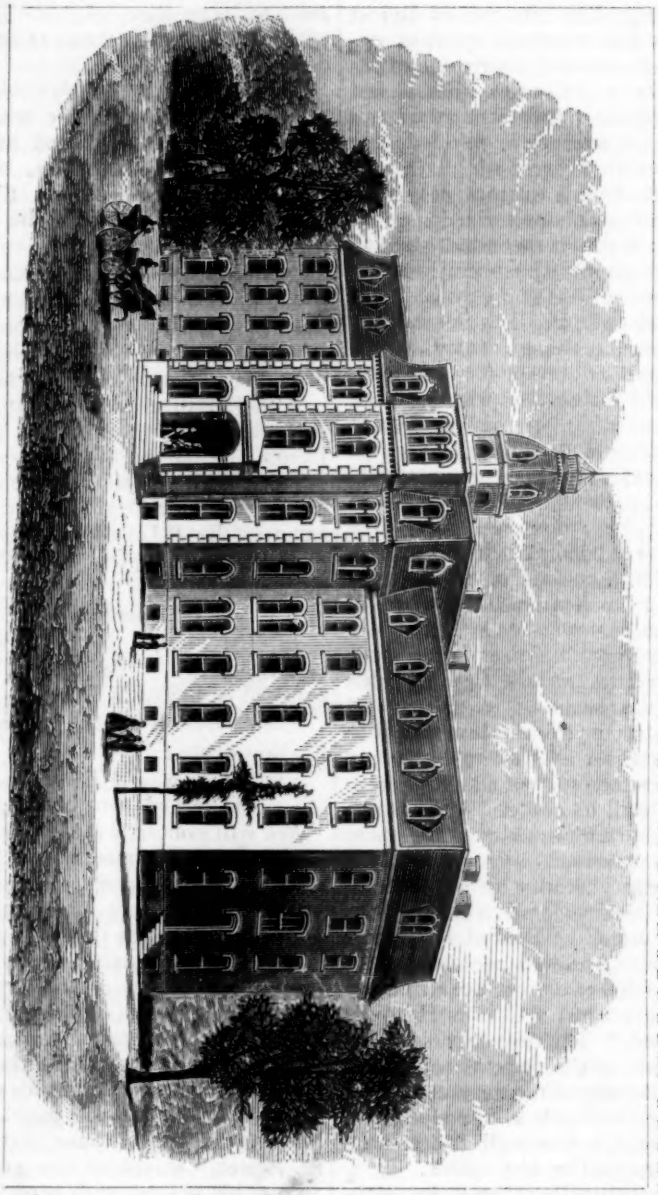
But what have the "dear old folks at home" to do with the teachers? A great deal; in the school-room we are apt to be the "dear old folks at home" on a smaller scale. Examine the two cases candidly and see if they are not quite parallel. "But," some teachers say, "it is impossible to be an 'angel' when one's school gets noisy, restless, idle and confused." Of course it is; an "angel" isn't wanted just then, but rather the doctor. Here you have a case of low mental life, and it occurs chiefly on dull days. Prescribe for it; the medicine is very pleasant and your (im-)patients will swallow it without any coaxing. What an idea! the teacher a doctor and the school-room an apothecary's shop! Does it seem odd? and yet it is all right.

Take the case of low mental life cited above. Now, in your daily order of recitations you should have two or three general exercises in which all participate at the same time; as, free-hand drawing, vocal music, language lessons, and the like. Announce some one of these and drop everything else; ten, fifteen, or twenty minutes on this general exercise, at this juncture, is not time lost by any means, but clear gain in every direction, morally, mentally, and physically. Is not that simple, easy and pleasant enough? Can you not take the role of the doctor to that extent?

You must keep the life in your school, and, no matter how earnest, conscientious, kind and skillful you are, you will have to make extra exertion occasionally, or success in its truest sense will never be your grateful portion. However, you must not mistake your school. If your government is better and your school more orderly when the County or District Superintendent, the Directors or citizens visit you, there is something wrong with it, and you will do well to read again Wickersham and other writers on the subject. Avoid all effort after a "showy" school. Discharge your duty in such manner that your pupils shall be unable to rise up in judgment against you when they reach maturity. Better than dollars and cents, and loud passing applause, will be such a reward.

WEST CHESTER NORMAL SCHOOL.

THE West Chester State Normal School, at West Chester, Chester county, Pa., is situated in one of the richest and most delightful parts of the state. West Chester, located twenty-seven (27) miles west of Philadelphia, with which it is connected by a direct railroad, has long been noted for the intelligence and culture of its inhabitants, and the excellence of its schools. The Normal School building was commenced in 1870, and was opened for the reception of students in October, 1871. It is within the borough limits, about a quarter of a mile south of the town. In external appearance it is unequaled by any other Normal School building in the state, being built entirely of serpentine stone and marble. It is 150 feet long, four stories in height above the basement; the main building extending back 112 feet. The dining-room, class rooms and chapel, are all commodious and well adapted to their purpose; the dormitories are all heated by steam and lighted with gas, and nearly all arranged for two students each. Each story is furnished with convenient wash-rooms to which students have access at all times, and the bath rooms are supplied with both hot and cold water. The lawn containing ten acres is tastefully laid out in walks, drives, croquet and ball grounds.



The school is supplied with a full set of philosophical and chemical apparatus, and the cabinet of specimens illustrating every department of natural science is very complete, being enriched by valuable contributions from almost every part of the globe.

One attractive feature of the management is courses of lectures by noted speakers. For the last two years, Joseph Thomas, LL. D., of Philadelphia, author of "Lippincott's Pronouncing Gazetteer of the World," has delivered courses on History and English Literature, and, during the present year, James T. Fields, of Boston, delivered a course upon Modern English Literature. The students have, from time to time, opportunity of hearing several of the most prominent platform speakers in the land. The regular courses of study include the Elementary, the Scientific and the Classical, as established by law, and, each term, there is a full course in all the common branches for the accommodation of those who wish to review these studies previous to the annual examinations. Though the aim of the school is to teach thoroughly all the branches of these courses, special attention is given to linguistic studies, including the best English authors. Three classes have been graduated from the school, and many of the graduates are occupying prominent positions as teachers. The school has been successful almost from its very start, and for the last three years, the demand for admission has been considerably in excess of the capacity of the building, many students taking boarding in the town. The Spring Session will commence March 26, a large number of names being already enrolled. The patronage of the school during the past year has been drawn from a wider range of territory than ever before, students being in attendance from fifteen or more counties and from several of the neighboring States.

THE STUDY OF ENGLISH LITERATURE.

NO. III.

THE poets Byron, Shelley and Keats were contemporaneous, and few contemporaneous writers have differed from each other in the character of their genius more than these three. The student of Byron will discover in him a certain spirit of defiance not to be found in the writings of his two brother poets, a defiance which is not confined to as vigorous protests against the shams of society as ever were penned, but was also acted out in a career which, it must be confessed even by his warmest admirers, was in some directions characterized by great license, a defiance which extended even to his literary style, giving it, especially in his more satirical productions a tang which is not to be met with elsewhere. Byron's was an exceedingly generous, though faulty nature, and his scorn and contempt for puerility, commonplace and insincerity were without disguise, and were often expressed in language which is scarcely confined within the limits of decency, sometimes unmistakably transcending those limits. "The Vision of Judgment" may be recommended to the reader who wishes to become better acquainted with his powerful and relentless sarcasm, without devoting much time to this aspect of the poet's genius.

Turning from Byron's satire to the more pleasing of his productions, we find his sympathy with the beautiful in nature and the noble in character to be at least equal to his powers of sarcasm. These qualities are frequently the counterpart of that first mentioned, and, indeed, its cause. Without enumerating the shorter pieces evincing these qualities in an eminent degree, and with some of which every reader of these criticisms will have become familiar through his perusal of the common "School Readers," if in no other way, we will recommend to the student only his two most beautiful and unexceptionable poems, "Childe Harold's Pilgrimage," and "The Prisoner of Chillon," urging him, at the same time, not to neglect a careful study of the notes appended to them, since, without a knowledge of what they embody, a thorough understanding of the poems will be impossible.

Shelley was less truculent than Byron, without being a whit less independent. Well born and well bred like his lordship, he shared with him also his hatred of sham and insincerity, and a most generous sympathy with all the oppressed. Anything like satire is scarcely to be found in his poems, though a righteous indignation often inspires his muse with an imperial authority. This indignation against injustice is especially observable in "Adonais," his magnificent monody on the death of Keats, in certain passages of which his sublime imagination soars to its greatest heights. The lofty scorn with which he introduces as compeers of his dead friend

> "The inheritors of unfulfilled renown,"

in contrast with the crew who had persecuted him, is unsurpassed in grandeur of conception and execution, but it is quite equaled by that passage in the "The Revolt of Islam," in which he describes the fearful conflict between

> "An eagle and a serpent wreathed in fight."

We do not mean, however, to intimate that there is any similarity between the two passages other than as they display that soaring power of imagination which characterizes Shelley in so pre-eminent a degree, and in which, in our opinion, he greatly excels Byron. Some of Shelley's shorter poems are among the most exquisite things in English; both in thought and diction, as, for example the "Lines written in Dejection, in the Bay of Naples," and the grand sonnet beginning:

> "I met a traveler from an antique land."

In that famous poem, teeming with imagery, entitled "The Cloud," we find the original of Bryant's line:

> "And snows are sifted o'er the meadows bare."

Shelley wrote:

> "I sift the snow on the mountains below,
> And the great pines groan aghast."

We will conclude these brief criticisms of Shelley with the mention of his sonnet on Buonaparte. A great genius like his will often express more in fourteen lines than your commonplace rhymster in a volume.

The last of the trio is Keats, whose poetry has often been described as "sensuous." It is a sufficient proof of his power and originality that his writings bear not the slightest trace of any imitation of either of his great contemporaries, and that his own genius has sensibly influenced the tone of subsequent literature. We suppose that his "Eve of St. Agnes," would be the greatest favorite among his poems, with readers of a romantic turn, on account of the story it embodies, slight as that story is. The description is well-nigh unrivalled, and has never been surpassed in its kind.

There is a peculiar richness and fullness in Keats's descriptive poetry, of which qualities two of the most striking examples are his odes "To Autumn," and "To a Nightingale." The former is the finest poem on the subject which we know of, and the latter affords an admirable means of comparing his peculiar genius with that of his friend Shelley, whose ode "To a Skylark" should be read, for this purpose, in conjunction with Keats's ode to the night-bird. Some of the very finest passages of the latter author are to be found in his classical poems, or, if we have the fear of the London reviewer before us, his poems on classical subjects; but we are afraid few of the readers of *The Journal* will be induced to study these somewhat heavier productions, however amply they might be repaid by the perusal. But no one can be deterred by their formidable length from reading, or even memorizing, the charming little rural sonnet entitled, "The Grasshopper and the Cricket," or that grand one "On first opening Chapman's Homer," which is worthy to hang side by side with Shelley's "Ozymandias," to which we have alluded above. Keats was not without capacity for that righteous indignation which characterized Byron and Shelley, as his sonnet on the imprisonment of his friend Leigh Hunt amply proves. In conclusion we will only say to the reader who may have the good fortune hereafter to visit Rome, that the graves of these two kindred poets are to be seen there in the Protestant Cemetery, near to each other and the base of the Pyramid of Caius Cestius.

THOROUGHLY EDUCATED.

IN the widest sense of the term education embraces not only the cultivation of the mind, but also the training of the body. It is not alone confined to our mental organization, to the development of those grand and almost infinite powers with which the Creator has endowed the human race, but it also includes every effort which has for its object the invigorating and strengthening of the body. The improvement of the intellect at the expense and neglect of the physical frame is certainly wrong and comparatively useless. For example, a man may be thoroughly educated, as far as the mind is concerned; but, if this has been obtained at the expense of the physical constitution broken down and almost destroyed by severe mental effort and carelessness in regard to the recreations *absolutely* necessary for its healthy condition, how long, I ask, will that intellect retain its brilliancy?

Can that mind exercise its full powers when encased in a weak and debilitated body? Will it remain there without becoming affected by the weakness that surrounds it? Certainly not. That the mind may be strong and vigorous it must be surrounded by pure and invigorating influences. Like the body which cannot retain its wonted energy when surrounded by a foul and malarious atmosphere; so the mind requires an atmosphere (figuratively speaking) free from all impurities.

Then, in view of these facts, what has that person gained who has cultivated the mind and neglected the body? Comparatively nothing. Indeed it is worse than that. He has lost much. Not only has he exhausted his physical strength, but, in course of time, his mental powers will have lost much of their original vigor.

The great Creator has placed every human being in this world for some purpose; and, if by an injudicious course in the preparation for their life-work, they have rendered themselves unfit to occupy the position or perform the duty imposed upon each of them, is it unreasonable to suppose that they will not be held accountable? They certainly will—from the fact that the body has been formed in such a manner that anything more or less than the proper care disturbs the harmony of its parts and disqualifies it for the performance of its natural functions.

Again, does education include only the culture of the mental faculties and healthy training of the body? By no means. It also comprehends an earnest solicitude for the heart in regard to its present and future welfare.

Education, to be complete, comprises also the inculcation of those pure, noble, and elevating truths and principles which shall stand the test of time and eternity. "The grand powers of the heart are the great basis of all true thought and action. The truly great men of the world have been those whose mental abilities were strongly supported by great moral qualities. Unless all mental greatness is thus based upon right, it is like the house built upon the sand, which the wind and rain and flood washed even unto its fall. It is the heart which finally rebukes ambition, defeats cunning, and disarms selfishness. By it, in the end, all causes are tried, all wrongs condemned,

all grievances redressed. From the heart have originated the most stirring appeals of patriotism, the most enthusiastic efforts for human freedom and happiness, the most self-sacrificing labors in every good cause. By it the greatest exertions of the mind spurred on by its better energies have been warmed into life, and have finally received from that source also their most grateful rewards."

Then, of what extent and value is the human heart as a subject for cultivation! Of what sound and virtuous culture is it not susceptible in its every relation of life! and, alas! of what evil! How true then is the assertion of a certain writer that "if the efforts of the mind are immortally bright it is because the glowing heat of the heart is there." "Keep thy heart with all diligence," says Solomon, "for out of it are the issues of life."

Education, therefore, embraces the three grand and most important parts of every human being, viz.: the development of the intellectual faculties, the healthy training of the physical nature and the earnest and careful culture of the immortal spirit.

Bedford, Pa. W. W. WISEGARVER.

ROMAN PRONUNCIATION.

WE learn from a recent number of the New England *Journal of Education*, that Prof. Thomas Arnold, of Oxford University, has lately published a volume of "Selected Poems" from Pope, in which to the line of the Dunciad—

"Or give up Cicero to C or K"—

wherein the old dispute on Latin pronunciation is satirized, the distinguished professor makes the following note: "The controversy on the right pronunciation of Latin has been lately revived and will, probably, end in our exchanging our present mode of pronouncing the vowels at least, for that now in use in Italy, whatever may happen in regard to the consonants." The high and influential source from which this opinion emanates gives it great interest to classical teachers, as a strong indication that the old anomalous English method is destined ere long to give place to a more uniform and enlightened system.

The *New England Journal*, within the last two years, has done a great deal to bring the Roman method into favor in New England, and elsewhere, its columns showing unanimity among the large body of leading classical teachers represented in its columns. The old New England colleges stood persistently on the old system, till, some three years ago, Harvard, in connection with Michigan, Cornell and other universities and colleges, united in the recommendation of the new method, an outline of which was given in their catalogues.

It is believed that the most of the New England colleges now favor the change, though no one of them has made the use of the new method *imperative* upon its students. Many preparatory schools, however, have lately adopted it, and the number is continually increasing, including also the College for Woman, recently founded at Wellesley, Mass. As another indication of the revolution which is in progress may be noted the fact that all the very late editions of the grammatical text-books make the new method prominent, the majority of them giving it the place of honor.

As the "Continental system," which is mainly that of the Roman, has, to a considerable extent, long prevailed outside of New England, especially in the Middle States, the abandonment of the English mode entirely would not constitute so radical a change as in New England. There is one thing safe to say in the matter. The teachers who adopt the new method are universally gratified with the change, finding its results in the class-room excellent in all points of view.

In the number of the journal already quoted, a teacher, attempting to use the new method, and not finding the fact distinctly stated in any of the text-books that the new vowel pronunciation, *unlike the English*, is founded wholly upon Latin *quantity*, asks as follows: "In using the Romanic pronunciation, are we to use the same rules for determining long and short sounds of vowels as in the English?"

An old volume in my possession, entitled, "An Essay on the Harmony of Language," published in London, in 1774, contains a chapter of so much force directly upon the subject under consideration, that it is ventured to copy in full a few sentences. The author's name does not appear, but the essay, which aims to apply to the English language the principles developed in Dr. John Foster's celebrated treatise on classical "Accent and Quantity," first published at Eton, in 1762, is a work of much erudition and dignity of temper and composition. Nearly half a century later than the Dunciad, it shows that the long wrangle was at that time in as full tide as it was when the Dunciad flung its satire in 1727. At the conclusion of an exhaustive effort "to set in a clear light what it is in pronunciation that distinguishes a long syllable from a short one," and thus to make it "not difficult to acquire a competent idea of the harmony of the learned languages," the essay "in order to find out what is right," proceeds "to examine a little more particularly what is wrong," as follows: "The falsification of the harmony by English scholars in their pronunciation of Latin, with regard to essential points, arises from two causes only: first, from a total inattention to the length of vowel sounds, making them long or short merely as chance directs; and secondly, from sounding doubled consonants as only one letter. The remedy of this last fault is obvious. With regard to the first, we have already observed that each of our vowels hath its general long sound and its general short sound *totally different*. Thus the short sound of *e* lengthened is expressed by the letter *a*, and the short sound of *i* lengthened is expressed by the letter *e*: and with all these anomalies usual in the application of vowel-characters to vowel-sounds of our own language, we proceed to the application of vowel-sounds to the vowel characters of the Latin. Thus in the first sylable of *sidus* and *nomen*, which ought to be *long*, and of *miser* and *onus* which ought to be *short*, we equally use the common long sound of the vowels: but in the oblique cases, *sideris*, *nominis*, *miseri*, *oneris*, etc., we use quite *another* sound and that a *short* one. These strange anomalies are not common to us with our southern neighbors,

the French, Spaniards and Italians. They pronounce *sidus* according to our orthography, [*see-du(oo)s,*] and in the oblique cases preserve the same long sound of the *i; nomen* they pronounce (penult) as we do, and preserve in the oblique cases the same long sound of the *o.* * * *

"It is a matter of curiosity to observe with what regularity we use these solecisms in the pronunciation of Latin. When the penultimate is accented, its vowel, if followed by only a single consonant, is always long. When the ante-penultimate is accented, its vowel is, without any regard to the requisite quantity, pronounced *short*, as in *mirabile, frigidus;* except the vowel of the penultimate be followed by a vowel, and then the vowel of the ante-penultimate is with as little regard to true quantity pronounced long, as in *maneo, redeat, odium, imperium.* Quantity is, however, vitiated to make *i* short even in this case, as in *vinea.* The only difference we make in pronunciation between *vinea* and *venia* is that to the vowel of the first syllable of the former, which ought to be long, we give a short sound; to that of the latter, which ought to be short, we give the same sound lengthened. The letter *u* accented, is always, before a single consonant, pronounced long, as in *humerus, fugiens.* Before two consonants no vowel sound is ever made long except that of the diphthong *au*, so that whenever a double consonant occurs, the preceding syllable is short. Unaccented syllables we treat with no more ceremony in Latin than in our own language."

"With such a pronunciation what havoc do we not make of the harmony of Latin and Greek poetry! Where almost, shall we find a line that we do not vitiate?"

With such a picture before us, and it is no doubt, substantially, a fair representation of the old method at the present time, as it was a hundred years ago—we perceive good reason for the opinion of the Oxford professor that the "vitiating" old system is, and it may well be added *ought*, soon to pass away, and with it end the long strife which has so vexed classic students for more than two hundred years.

Wilson College, Chambersburg, Pa. A. P. G.

EDITORIAL DEPARTMENT.

THE SCHOOL JOURNAL.

LANCASTER, FEBRUARY, 1877.

J. P. WICKERSHAM. . . . . J. P. M'CASKEY.

THE Warren county institute, of whose proceedings we have a pamphlet copy before us, seems to have crowded into five days an unusual amount of *practical* work. The principal instructor from abroad was Prof. F. A. Allen. The Warren teachers seem to know how to help themselves.

A VERY interesting document is that we have just received from Supt. W. H. Shelley, containing the "Annual Report of the Public Schools of York, Pa., for the year ending June 30, 1876; together with the classification of the High School and Revised Course of Study, &c." No city or town in the State has a more complete school organization than York. We are specially pleased with the Course of Study adopted. It is comprehensive, full and logical.

THE principal educational institution of Japan, under the new regime, is the National University of Tokio. The name given it has great significance. It is called *Kaisei Gakko*, which means *School for the Advancement of Civilization.* How many of our schools, or even of our higher educational institutions, occupy a platform as broad as that upon which stands this new-born Japanese University?

PENNSYLVANIA, in 1776, had eight public libraries: one at Chester, the Chester Library, founded in 1769, with 1500 volumes; one at Lancaster, the Juliana Library, founded in 1770, with about 1000 volumes; and six in Philadelphia. Of those in Philadelphia, that of Christ's Church was founded in 1698, and contained 800 volumes; that of the four Monthly Meetings of Friends was founded in 1742, and contained 111 volumes; the Loganian Library was founded in 1745 and contained 4300 volumes. The Pennsylvania Hospital founded a library in 1762, and the University in 1755. The former contained 305 volumes and the latter 2500.

ALLEGHENY CITY has been in quite a state of excitement during the past month. A proposition has been made in the Board of Controllers to reduce the number of principals in the grammar schools. Superintendent Davis seems to be in favor of this proposition, and recommends such a change in organization and course of study as to limit the number of supervising principals to be elected for the coming year to seven. The proposed reduction, however, is meeting with strong opposition on the part of the principals and others, and a lively controversy is in progress in the newspapers. Our friends out there enjoy a little "fun" of this kind.

"THE proceedings of the second convention of the Directors of the Poor and the

Board of Public Charities of the State of Pennsylvania, held at Lancaster, September 19th and 20th, 1876," has been placed on our table. It is an interesting document. The question of pauperism is very closely allied to that of education. We believe that education may be made an agent sufficiently powerful to greatly lessen, if not to wholly eradicate pauperism.

The subject discussed in the convention that most interests us is that of "Children in our Alms-houses." On this subject an able and suggestive paper was read by Amos Stauffer, Esq., of Franklin county. We hope to have room for full extracts from it in the next number of *The Journal*. It touches the hardest of all our educational problems, viz., What disposition shall be made of the friendless and neglected children that are growing up among us?

THE West Virginia *Educational Monthly* speaks to the point as follows:

How may the character of a school be known? To parents who are seeking a temporary educational home for their sons and daughters, this is a very serious question. The question is, aside from advertisements, catalogues, teachers, commendation of interested friends, most satisfactorily answered by reference to the character of the pupils. If a school sends out young men over the country, who make their vacations seasons of drunkenness and profane dissipation, and carry this immoral exhibit to such excess as to render themselves notoriously offensive to all respectable society, people who know can well understand that such deportment is not an untried and new line of conduct, but the result of well-established habits of dissipation. Parents of intelligence and proper moral feelings will not need further evidence of the character of the school that is thus significantly represented.

As supplementary to the work of our schools, *The Journal* has frequently recommended the establishment of libraries, reading-rooms, literary societies, lyceums, courses of lectures, etc. Superintendents and teachers might do a world of good in this direction if they would take hold of the matter vigorously. Something of the kind might be organized in almost every schoolhouse in the Commonwealth, certainly in every town and village.

As an example of what may be done with a little effort we will explain the plan by which the little town of Quarryville, Lancaster county, has organized a course of lectures for the winter. There was a suitable hall unoccupied. Mr. L. T. Hensel, a public-spirited young gentleman, leased it The first lecture is to be delivered by Elder A. M. Musser, of Salt Lake City, a native of Quarryville, now on a visit to his friends. The second by Henry Baumgardner, a leading citizen and business man of Lancaster, who will give an account of his recent "Trans-continental trip to the Occident." This will be followed by lectures by Messrs. Brosius, Martin, Franklin and Hensel, all promising young lawyers of Lancaster, and by Rev. D. H. Geissinger, an able and popular young clergyman of the same city. These lectures will probably all be delivered gratuitously, and Quarryville is to be congratulated upon the intellectual feast in store for her people. Let other towns and villages imitate this good example.

DR. W. H. RUFFNER, Superintendent of Public Instruction in the state of Virginia, publishes in the *Educational Journal* of that state an interesting article on American Education at the Centennial. There are few better judges in the country, and this is his estimate of the Exhibition as a whole:

Taking the Exhibition of the fourteen states as a whole, it was respectable, but not overpowering; and when observed in connection with even the meagre exhibits from other countries, we could not boast of superiority over all the rest of mankind. We only claim to have done well considering our age.

Below we give what he says in particular of the exhibit of Pennsylvania:

There is not space for noticing the interesting exhibits of New Jersey, Rhode Island and other states. But I ought not to pass over the large, liberal, and complete display made by Pennsylvania. It was really the only exhibit that could be called complete, or anything like complete; even that of Massachusetts seemed to be wanting in respect to some of her higher institutions. But I was not able to discover any important defect in the Pennsylvania exhibit. Its educational building was 100 x 100 feet, with two wings 48 x 48 feet. Kindergartens, common schools by counties and cities, Academies and Seminaries, Colleges, Universities, Normal Schools, Orphan Schools, Sunday-schools, institutions for the Blind and for the Feeble-minded, Schools of Design, and other special schools—all are represented. Besides which private parties exhibit school books, furniture, apparatus, ornaments, etc. But whilst there was this fullness in the collection, and there were many articles and products of the highest merit, yet this Pennsylvania exhibit as a whole seemed far below that of Massachusetts in respect to *quality*. This is partly to be accounted for by the fact stated that everything offered was accepted and put on exhibition; whilst the Massachusetts collection had the tone of rigid eclecticism.

Will our superintendents and teachers take notice what this distinguished critic for the lectures. The price of admittance was fixed at ten cents a lecture. Not being able to procure distingushed lecturers from abroad at one, two, or three hundred dollars a night, home talent is to be utilized.

says of the "quality" of our school work in comparison with that shown by Massachusetts? School for school and pupil for pupil, we do not think they do any better work in Massachusetts than we do in Pennsylvania, except in drawing; but we may not be able to judge fairly. Our safest plan is to assume that Dr. Ruffner is right, and bend all our energies to improve the *quality* of our work. How would it do to challenge Massachusetts to a second trial?

PROF. SELDEN J. COFFIN, the distinguished Professor of Astronomy and Mathematics of Lafayette College, recently delivered one of his entertaining and instructive lectures before the Teachers' Institute, at Wilmington, Delaware, by special request. The Wilmington *Commercial* thus refers to it:

> There was an unusually large attendance not only of Teachers, and members of the Board of Education, but of citizens generally, yesterday afternoon, to hear Professor Coffin's lecture on Astronomy, before the Wilmington Teachers' Institute, in No. 1 school. The lecturer is Professor of Astronomy in Lafayette College, at Easton, Pennsylvania, and is perfectly familiar with the subject. The Professor had with him a number of handsome charts belonging to the college, to illustrate his lecture, which appealed to the understanding directly through the sight. The plan for measuring the distance from the earth to the sun, and the distances between the planets, was fully explained, and the different theories advanced of the cause of spots on the sun. Charts were exhibited, explaining the different phases and changes of the nebular bodies, how that some of them are becoming less, others growing larger, and still new ones forming. The lecture, throughout, was one of the most instructive ever delivered before the Institute, not merely for new theories advanced, but for the perfect illustrations and the clear explanations following, which were something new to most of those present.

THE first number of the *Educational Weekly*, published at Chicago, is on our table. The *Weekly* is the result of the consolidation of some six or eight educational monthlies of the northwest, representing as stated the states of Wisconsin, Kentucky, Illinois, Michigan, Nebraska and Indiana. By a similar consolidation, formed some years ago, the *American Journal of Education* was established at St. Louis, and by another more recently entered into, the *New England Journal of Education* was established at Boston. The Boston and Chicago magazines are weeklies, that at St. Louis is a monthly. The two weeklies are very much alike in appearance and make-up. Both are ably edited. Both have assistant editors in each of the consolidated states. The first represents the polished culture and the full-grown school life of the East, while in the second we will no doubt have the bold and vigorous thinking of the growing West. Each has before it a grand field of effort, and both enterprises, and all others with similar objects, have our heartiest good wishes.

The editor of the *Weekly* says: "Consolidation is the order of the day in this department." His words seem true, and yet we are not quite sure that the cause of education in every-day, practical work, will be the gainer by the change. It is not yet clear to us that six or eight educational journals in as many states, doing their allotted work efficiently, will not accomplish more for our school interests than a single one, even though it be larger, better edited, and more frequently published. A paper in Chicago fights for the cause of education in Kentucky or Nebraska at arm's-length. A few feeble strokes by a local editor, given out of time and at random, are a poor substitute for the strong blows that should be dealt upon the head of an enemy whenever and wherever he appears. It may be that we need heavy artillery to play at long range; but in our own many battles for universal education, we have learned to rely more upon the musket, the bayonet and the sabre. Our best fighting has always been done at close quarters. Following the example of our cotemporaries, east and west, we might perhaps unite the educational journals of the Middle States. New York, New Jersey, Pennsylvania, Delaware, Maryland, Ohio and West Virginia, would be a grand field for a great teacher's magazine; but we are satisfied that each of the states that has a magazine of its own would on the whole lose by the change. A central journal could not speak here with that power, and point, and adaptation to circumstances, that seems to us most desirable.

But we may be wrong in all this; and we shall watch this consolidation experiment with deep interest, prepared to give it full credit for all it may accomplish for the good cause.

Since writing the above we learn that several school journals in the South have been consolidated, and on this basis a new journal is to be established called "The Eclectic Teacher and South Western School Journal." Its field is claimed to embrace North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Tennessee and Kentucky. The

Middle States are now in the sense of this consolidation movement completely "out in the cold."

LAFAYETTE COLLEGE.

THE December No. of *Scribner's Monthly* contains an excellent article, fully illustrated, on one of Pennsylvania's leading educational institutions, Lafayette College. It was written by Donald G. Mitchell, "Ik Marvel;" and, apart from the matter, the manner makes the article attractive. We regret that we have not space to print the whole article; a synopsis would spoil it; and the best we can do is to advise all the friends of Lafayette—and what reader of *The Journal* is not here included?—to send for the December *Scribner*.

And just here we deem it in place to say how well pleased we are to see the magnificent exhibit made by Lafayette at the Centennial properly appreciated by competent judges. The London *Engineering* is one of the great authorities of engineers all over the world. It flatters no one; but judges all with mathematical positiveness and precision. Below is what it says of the Lafayette exhibit:

Lafayette College is, if we rightly infer from what we have seen, less ambitious of a purely technical representation than the two preceding academic establishments, and yet we found particular pleasure in looking over its engineering drawings. These were numerous, and included specimens in geometrical construction, orthographic projections, linear perspective, pen topography, contour maps, colored topography from railroad surveys, etc. The most characteristic exhibit of this group is a fine collection of twenty-four water-colored views of the apartments devoted to chemical instruction. The mere names of these rooms show that chemistry is not in Lafayette what it is in more than one of the five hundred American colleges and universities, a nominal subject that must be cut down to its lowest terms. It is a wonder to us how any faculty can confer such a degree as that of bachelor of science without requiring of its graduates any more than the veriest smattering of elementary chemistry, and we know that this is annually done in a number of academic institutions. In Lafayette this important study seems to receive due attention, particularly when taken up with the ultimate view of a professional career. The Pardee Hall, as this department is named from its generous founder, Ario Pardee, is divided into twenty-five rooms as follows: (These are only the rooms in the chemical department; there are in all sixty-one in Pardee Hall.—*Editors Journal.*) Laboratory for general chemistry, assistants' room, laboratory for organic analysis, lecture room, laboratory for quantitative analysis, laboratory for original research, essay laboratory, laboratories for volumetric analysis, for gas analysis, for blowpipe analysis, the professor's laboratory, balance room, sulphydric rooms for quantitative analysis, and last of all the professor's office. This collection also contains specimens of 1322 wall charts made and used in the several departments of the college, maps of "the winds of the globe" by the late Professor Coffin, an interesting chart showing the path of the great meteoric fire-ball of 1860, computed by the same professor, and a collection of the works published by the faculty and alumni.

GOV. HARTRANFT SAYS, "FORWARD!"

THE annual messages of Governor Hartranft have been distinguished for full, clear, timely and progressive views on the subject of education. As in the army, no one can mistake his purpose to be at the head of his troops. In his late message in particular, he plants himself in an advanced and somewhat exposed position, and gives the order, "forward!" He would have our school laws revised, our courses of study improved, plans adopted for building better school houses, and making our school organizations more efficient. He takes strong ground in favor of increasing the provision for higher education, and of establishing industrial and technical schools. And he would have all the neglected and destitute children of the Commonwealth gathered into homes and instructed and cared for. But every school man will want to read and study the message for himself, so we present below, in full, what the Governor says on the subject of

EDUCATION AND SCHOOLS.

The reports of the Superintendent of Public Instruction will exhibit the educational progress of the year. They testify strongly to the unshaken interest felt by the people in education, and contain recommendations which are entitled to your serious consideration.

Our school laws, the expressions of a growing public sentiment, made from time to time, are a mass of fragmentary enactments, which it would be well to reconstruct in harmony with the wants of the community and the tendencies of the times. A revision of the methods and course of studies, a plan for building better and improved district school houses, and greater control over the whole system than the State now has, are among the changes that are desirable.

The first design of the common schools was to furnish an elementary education to the poor. The system has rapidly overgrown the original boundaries. It reaches into all departments of learning, professional, industrial, and artistic, and the manifest tendency is to have the State assume *in toto* the function of public educator, and give to every class of its citizens special and appropriate training. Every year the recommendations cover a wider field, and new institutions of higher and special instruction are pressed upon the State. High schools, academies and colleges, industrial and art schools, and work-

shops and laboratories, are confidently assumed to belong to a system of State education. The drift of public opinion is unmistakable. The growth of this opinion, the increasing industries of the State, and the example of foreign nations, concur in urging the extension of the system. My views upon the subject of compulsory and technical education have already been laid before you. I have heretofore uniformly encouraged all efforts to raise the standard and increase the utility of the public schools. They are the nerve-centres of the body politic, from which emanates the intelligence that gives life to its institutions. Whatever strengthens them strengthens the Commonwealth. The suggestions of the Superintendent, that the field of public education be still further enlarged by the establishment of secondary schools of a higher grade, and the system supplemented by industrial and technical schools, will scarcely need my endorsement to commend them to your attention.

While we are extending and enlarging the system of public instruction, we must not allow the destitute and neglected children, whom it was intended to benefit, to drift beyond its bounds. It is safe to say that not one in a hundred of this very class is to be found in the schools. Thousands of children throughout the State are driven prematurely to work, or wander in idleness, exposed to the vicious influences of ignorance and want, of filth and crime. The halt, the blind, the deaf and dumb, are not more circumscribed by the hard condition of things than these miserable and friendless waifs. They are equally entitled to the care of the State; self-interest and charity are here identical. Embryo criminals nurtured in want, these outcasts, grown to maturity, eventually fill the prisons and alms-houses, and the money that the State refuses to redeem them it is at last forced to expend to repress them. Some provision by which they could be sent to the numerous homes for friendless children, and educated and cared for at a partial expense to the State, would be an act of wisdom as well as charity.

The schools for the education of soldiers' orphans are in a flourishing condition, and the children are, as a body, healthy and happy. "Their intellectual and moral improvement has been satisfactory, and no backward step has been taken in the work of rendering as efficient as possible, the industrial departments of the several schools." Since the system went into operation, eight thousand five hundred and eighty orphans have been admitted; and the number of children in the care of the State, on the first day of September, 1876, was two thousand six hundred and forty-one. The expenditures were a little over four hundred thousand dollars, being about twenty thousand dollars less than for the last year. The estimated appropriation for 1877–8 is three hundred and eighty-five thousand dollars. As the time approaches for the dissolution of this noble charity, which has reflected infinite credit upon the State, the people can reflect with pride and pleasure, that of the six thousand who have enjoyed their bounty, many are now in lucrative employment, and all, with scarcely an exception, have become good and useful citizens. The good results obtained in this work should stimulate our zeal and quicken our action, in regard to the other destitute and friendless children before referred to.

The recommendation to raise the standard of the Normal Schools, and fix the legal status of teachers, is worthy of attention. Undoubtedly the great want of our public school system, is a body of teachers who have chosen the profession as a life-work. Such a class cannot be formed without special training and inducement. To reap the full fruit of our school system, it is, therefore, necessary to liberally support and equip our Normal Schools, to secure the tenures of our teachers, and to provide a just compensation that will not leave them destitute after years of faithful toil. The extraordinary expenses of the past year have prevented the usual appropriations to these schools: as these are no longer required, I trust you will extend such aid as the finances of the State will permit, to enable the Normal Schools to successfully perform their function.

Pennsylvania is indebted to the voluntary zeal and energy of the School Department, seconded by efforts of educators and teachers throughout the State, for the creditable educational exhibit at the Centennial. In the short space of three months, the hall was erected and the immense mass of material suitably arranged—a work involving an amount of labor from the Superintendent and his assistants, which is worthy of all praise. The exhibition awakened renewed interest in educational matters, and will undoubtedly be the means of invigorating and improving our schools.

"COLD WATER."

BELOW we insert an extract from the late message of Governor Robinson, of New York. He professes friendship for the common schools, and some of his suggestions are well worthy of consideration; but as a whole we like neither its temper, tone nor sentiments. If such a message had appeared in this state, we would consider it "cold water," bitter cold water, thrown on all our educational movements. In happy contrast is the broad and liberal message of our own Governor.

Governor Robinson says:

The amount paid for teachers' wages during the past year was $7,949,085.17. The whole number of children attending public schools was 1,067,199. The number attending normal schools, 6,391. The number of children of school age in private schools, 134,404. If to all these we add the numbers of those who are instructed at home by private tutors, in academies, colleges, and other institutions not reported, some idea may be formed of the immense amount of money drawn from the people of the state, voluntarily or by taxation, for school purposes. Without intending to intimate the least suspicion that any part of this large amount is unwisely or improperly expended, the subject is of such magnitude as to be worthy of careful examination and scrutiny.

The question whether the state can educate all the children within its limits better than they can be educated in schools organized, conducted, and paid for by the parents of the children themselves, has been decided in favor of the state, which is now conducting the experiment on a very large and expensive scale. It is of the utmost importance that the experiment should be successful, and that it should be so conducted as to merit the confidence

and support of the entire community. To this end, if there are any errors in the mode of conducting it, they should be corrected before they lead to evils which it may be difficult, if not impossible, to remedy.

The only ground upon which citizens who have no children can justly be compelled to pay taxes for the education of the children of others, is that it is necessary for the safety of the whole people under our form of government. Our institutions, by their very theory, carry with them the assumption of a certain grade of intelligence among the citizens. It seems, therefore, to be the duty of a state to see to it that each and every citizen, so far as practicable, shall be educated to such a degree as will enable him to read and understand the laws, the Constitution, and the ballot that he votes on election day. The schools in which education is given to this extent always carry their line of instruction far enough to embrace all the branches usually taught in our common schools. It seems to me to be a clear violation of personal rights for the state to go beyond this, and levy taxes to support free academies, high schools, and colleges, in which the higher branches of literature and science are taught, and young men prepared for the learned professions. This should be left to individual effort, from which better results always come than from any amount of donations from the state.

It should also be remembered that the expenditure of such large amounts of public money has almost invaribly led to great abuses, and there is no security against the same tendency in educational management. The expenditures for school-houses, repairs, and furniture, during the last ten years have amounted to $19,569,109.97. It is perhaps well to inquire whether this large amount has been wisely expended in the construction of plain, substantial, and comfortable school-houses, or whether it has been, to any extent, handled by fraudulent contractors, or devoted to the construction of costly and ornamental buildings, for the benefit, possibly, of the owners of adjoining property.

I would also suggest an inquiry as to whether the normal schools are really worth to the system what they cost. I am informed that a very large portion of the pupils instructed in them never follow the profession of teaching for any length of time. There ought, also, to be found some remedy for the great abuse and expense arising from number of new school-books, and the frequent changes made, for no good purpose, but simply to benefit the publishers and agents. It is undoubtedly true that inducements are frequently offered to school authorities and teachers to aid in the work of changing books and selling new ones. It would be strange if these temptations were always resisted. It seems to me proper that the Legislature should fix some limit to this evil. Finally, I would recommend a return to the former system of making an appropriation of a specific sum in each year from the State Treasury for the benefit of the common schools, and put into the tax-levy a rate sufficient to cover the amount—$2,500,000 at the utmost ought to be, and will be, amply sufficient, if proper care is taken in the use of it. These suggestions are made in a spirit of sincere friendship to our common school system, to the end that it may not be exposed to any just objection; that its admistration may be characterized by a wise economy, and by degree of purity which shall place it above suspicion, and keep it in the future, as it now is, strongly intrenched in the confidence of the people.

PENNSYLVANIA IN MICHIGAN.

IT may be good for us to know that what we are doing in school matters, is attracting attention in other states. Among the rest, that excellent teachers' paper, *The School*, Michigan, has an eye upon us. Below will be found some comments of the editor upon the proceedings of our State Teachers' Association. We hope the editor of *The School* will not only think and speak well of us, but come over and shake us by the hand, and help us solve some of our hard educational problems. The Association will meet at *Erie* next year.

At the annual meeting of the Pennsylvania State Teachers' Association, recently held, the following subjects were presented; The Centennial and its Lessons; State Normal Schools; Technical Schools in the System; County and Local Supervision; The New Era in Public Schools; School Room Stimulants; Kindergartens; Schools for the Feeble minded; Teachers' Institutes; Woman as a School Officer.

We have become very much interested in this Association, because of the fullness and excellence of its annual programmes, and because of the large number of capable and enthusiastic men and women who assemble at its meetings. However, having had an opportunity to see and learn somewhat of the details of the school work of the State through its extensive exhibition at Philadelphia, we feel a sort of acquaintanceship which enhances still further our interest.

The discussion of the several papers presented was exceedingly full; and generally very able. A spirit of criticism seemed to have got possession of the whole body from head to foot, which not only contributed to very general speech-making on the part of the leading teachers, but also made matters pretty lively at frequent points. The *Pennsylvania School Journal*, to which we are indebted for the material of these comments, gives a full report of the proceedings—the September number of that large magazine being entirely occupied therewith.

The Normal School, which is not a "King at Court" on such occasions, proves at least a "Ghost at the Board" in these entertainments, and was of course in for a share of consideration. We were naturally interested in this part of the report. They have there, however, a different phase of the Normal problem from that which agitates teachers generally. It is not the old heresy that a Normal School should be strictly professional that troubles them, though they admit that the work of their Normal Schools is largely of an academic character;—and what is worse, that condition of things is winked at and excused on the ground of its necessity to the existence or support of the system, just as though the system had any legitimate claim to support, except so far as it was needed in its appropriate place; but the trouble there is, that their Normal Schools are not really or entirely State institutions, and a good many are beginning to feel that they ought to be such. We think so too, most certainly, though we have never had here any other experience than of the Normal as purely a State school. We say emphatically, God speed the day when our good Pennsylvania friends shall rejoice in the accomplishment

of the end they are now beginning so earnestly to seek—the realization of the only true and proper relation of their Normal Schools, the only foundation upon which they can strongly and securely stand.

ATTITUDE OF THE CHURCH TOWARDS THE COMMON SCHOOL SYSTEM.

WE find under the above heading the following article from the pen of Prof. N. C. Schaeffer, of Franklin and Marshall College, in the Reformed Church *Messenger*, and republish it on account of the timely truths it contains. We fear, however, that Prof. Schaeffer is thinking of the normal schools more as feeders for the colleges than as nurseries of teachers for our common schools. Our own opinion is that they will not engage, and ought not to engage largely, in the work of preparing students for college. They will, however, if well supported by judicious state aid, do indirectly for the colleges all that Prof. Schaeffer could wish.

During the sessions of the State Teachers' Association recently held at West Chester, a watchful eye could not help observing the wide chasm which separates the common school system from the institutions that stand directly under the fostering care of the Church. Only three colleges were represented (Lafayette, Westminster, and Franklin and Marshall), and although the Association invites all friends of education to become members, very few of the clergy took any part in the exercises, or even showed their faces at any of the sessions. The large majority of those in attendance were teachers or school officers connected with the system of public instruction now in vogue throughout the entire State.

This representation is unfortunately an index to the condition of things which prevails to a large extent all over the commonwealth. The cause of higher education is in the hands of colleges, which are supported and controlled by various religious denominations; the oldest and most experienced educators are identified with these colleges, and have lit tle or nothing to do with the common schools, which are supported and controlled by the State. In some communities the clergy, feeling dissatisfied with certain features of the system, stand aloof from it and assume towards it an attitude of indifference, if not of hostility. Thus they throw away the influence which they might otherwise exert; for the moment a man severs his connection with a religious or social body of any kind, he cuts the sinews of his power, and renders himself helpless so far as the membership of that body is concerned. In such circumstances the employment of teachers and the general management of the schools often falls into the hands of those who are hostile to the Church and to all positive Christianity.

It would be an easy matter to sketch a system of parochial schools, combining the superior advantages of religious and intellectual training; but such a system can only be carried into operation where the whole community belongs to one religious denomination. In Pennsylvania the adoption of such a system is a practical impossibility. The common school system is a fixed fact, and we may as well make the best of it. The new Constitution requires the Legislature to make an annual appropriation of at least one million dollars towards the support of these schools; school edifices on a magnificent scale have been erected in most of our cities and towns; nearly a dozen state normal schools have been established for the purpose of training skillful teachers; and the old, time-honored academies are rapidly disappearing before the pecuniary inducements which the state enables her normal schools to offer. Moreover, the graded schools of our cities and towns have attained such a degree of efficiency that parochial schools can no longer compete with them either in thorough work or stringent discipline. The teacher of a private school is under the constant necessity of humoring his pupils: otherwise he may lose the patronage, upon which the very existence of his school depends. This difficulty has hampered parochial schools wherever they have been tried within the territory of the Reformed Church.

It would be folly to suppose that parochial schools are a panacea for all the ills which afflict our systems of training the young. The result in Germany is anything but satisfactory. During the writer's sojourn abroad, whenever he heard young men and women complain of dull or mischievous times at school, it was in connection with the hour set apart for religious instruction. Americans are often appalled at the knowledge of Scripture, coupled with extraordinary profanity, which some graduates of the gymnasiums evince. Christian nurture evidently involves far more than mere instruction in the Bible To know the commandments and to obey them are two very different things. Whilst it would be a great mistake to undervalue the importance of a knowledge of Biblical truth, it is a still greater mistake to identify such knowledge with Christianity itself.

After all, the main thing is that the teacher himself be an earnest Christian. In moulding and training the young, as well as in everything else, example is better than precept. Very seldom did Dr. Arnold, the great teacher of England, speak to his pupils on religious subjects; it was the silent influence which he exerted upon others, that made his pupils what they were. In the very nature of the case religious and secular instruction can not be imparted at the same time. The man who thinks he can teach the Bible while drilling a class in Algebra, shows that he does not understand the fundamental principles of mental culture. Our public school system leaves religious instruction where it properly belongs, that is, with the family, the Sunday-school and the catechetical class. If these succeed in fully discharging the duties devolving upon them, the same end is reached as that contemplated by a system of parochial schools. The duty of every pastor plainly is to make the agencies at hand in the bosom of the Church as efficient as possible, and to use his influence as far as he can to secure good Christian teachers for our public schools.

Objection might be made that the state does not recognize the clergyman as such in her system of common schools. But the proper way for him is to work in his capacity as a citizen of the commonwealth. If he be the leading man in the community, which he ought to be, those who have charge of the schools will gladly listen to his advice and heartily welcome the support which he may be able to give them. The few college men who were at West Ches-

ter, had every opportunity to make themselves heard. The complaint was made that the normal school graduates, upon whom by reason of their skill as teachers the moulding of the common school system has largely devolved, seldom have any knowledge of the classics, and that therefore the graduates of many of our high schools find it impossible to enter the Freshman class of any decent college in the country, and hence never get the benefits of a liberal course of training; and in response the principal of the oldest and most successful normal school in the state advocated the establishment of one normal course instead of three, which should include Latin and Greek as far as the Sophomore class in college. If the committee appointed to report a plan for revising the normal school system should adopt a modification of this kind, it would bridge the chasm which now separates our colleges from the public schools; and, although such a policy will in the end surely prove the death of our academies, yet, on the other hand, it will be a source of immense gain to the cause of popular and higher education in the Keystone State.

FURTHER CONCERNING OUR CENTENNIAL EXHIBIT.

THOSE who spent so much time and money in preparing educational material for the Centennial exhibition, must be told what has been said of their work. In former numbers we have made quotations from various sources; we now add what follows:

In *Belford's Monthly Magazine* for December, Toronto, Canada, Dr. J. George Hodgins, Deputy Minister of Public Instruction of Ontario, says:

Of the States of the American Union which have made a creditable appearance in educational matters, Pennsylvania stands out preëminently. She has not only erected an Educational Hall, but she has well filled it with an admirable display of the results of her system of public instruction in its various details. Massachusetts comes next, and does well; then New Jersey, Ohio, Indiana, Illinois, New Hampshire, Maine, Connecticut, Rhode Island, etc.

The *American Bookseller* for August contains the following:

Near the Art Gallery stands the Pennsylvania Educational Hall, erected by funds appropriated by the State and contributed by school boards. It is octagon in shape, having a circular room in the centre, between which and the outer wall is a single passage-way extending entirely around the building. The main exhibits are made in alcoves on each side of this passage. Nearly all the cities and towns, and the various educational institutions of the State, public and private, are represented, each in its own space. On one side of the building is an extension devoted to the offices of Prof. Wickersham, the State Superintendent, who is in constant attendance, and corresponding rooms on the other side have been fitted up for the reception of teachers, by the teachers of Philadelphia. The best way to get a good view of this interesting display is to commence with the Kindergarten, immediately to the right of the north entrance, and make the circuit of the building. The Kindergarten work is from a school in Easton, and a number of private schools in Philadelphia. It is very pretty and indicates thorough training. Steiger's and Bradley's materials are used. Next to this are shown furniture, books, charts, and apparatus in general use, and, in two opposite alcoves, the work of the Industrial Departments of the Soldiers' Orphans' Schools, of which there are forty-five in the State, with 2,772 pupils now in attendance. This is a noble State work, and the evidences here of its excellent management are peculiarly interesting. Creditable school work is also shown in bound volumes. On the right again is an alcove of country school work, which is all deserving of praise, especially the map drawing. We notice here some good work in German.

We come next to the city of Allentown, Norristown, Hyde Park, Erie, Williamsport, and other towns. There are photographs of elegant buildings, notable specimens of map drawing, also very fine specimens of mechanical drawing, from the high school of Erie. There are samples of drawing from the primary classes up, and especially good work in German, the introduction of which is left to local boards, but is adopted in most of the cities in some part of the course. York makes a very fine exhibit in all branches. In the next alcove are Easton, Reading, Columbia, Chester, and other graded schools, showing photographs of pretty buildings and bound volumes of school-room work. Especially noticeable are the free-hand drawings from the West Chester high school, and the mechanical drawings from the free evening schools of Pittsburgh, which city occupies the whole of the next two alcoves. On the walls are splendid samples of plain and ornamental penmanship, the work in other branches of study being displayed in large frames, worked into various ornamental devices. Other work is exhibited in immense oblong volumes, showing whole classes. Many of these are neatly ornamented with pen and ink, and we find everywhere excellent penmanship. In one of these volumes we find for the first time samples of phonographic work, as taught in the Commercial department of the Pittsburgh high school. There is a large model of this high school building, which also shows very excellent mechanical drawings. All the drawings from the Pittsburgh schools are good.

On the inner side of the passage is the exhibit of the Institution for the Blind in Philadelphia, which includes brushes, brooms, mats, carpets, sewing, knitting, and other handiwork; also samples of the maps, slates, books, and other materials used in the school-room. There are also shown chess and other game-boards, made especially for the use of the blind. On our right we find a model of the Moravian Seminary for Young Ladies, with very creditable work from its students in embroidery, water-color painting, oil and crayon studies, etc. Girard College makes a fine display of drawings, mechanical and free-hand studies in pencil, crayon and water colors, and some noticeable ornamental penmanship. Further along we come to a model of the Millersville Normal School, the books and examination papers used in that institution, volumes by members of the faculty, some good drawings, and artistic designs for carpets and tapestry. Here, also, are views of the Edinborough and Kutztown Normal Schools. In the opposite alcove the Girls' Normal School of Philadelphia, and the Normal schools of Blooms-

burgh, Shippensburg, and West Chester, show some excellent work in penmanship, drawing, and designing, and photographs of their buildings, including an interior view of the Bloomsburgh Gymnasium, with the pupils at exercise. Further along on our right, the Franklin and Marshall College, and the State College, the Washington and Jefferson, and the Haverford College, show works by their faculties, views and plans of their buidings, and samples of their apparatus. Haverford exhibits a copy of the "Codex Sinaiticus," which contains a faithful transcript of probably the oldest existing MS. of the New Testament, discovered in the convent of St. Catharine on Mt. Sinai. Then comes the Lincoln University, for the education of colored men, with their text-books and copies of papers used at examinations, and the Lewisburg, Lehigh, and other universities, with views of buildings and grounds.

By this time the visitor is likely to become weary of so much that is unexceptionably good; and if his mind takes a retrospective turn, he will long to get a glimpse of the past, out of which all this wonderful progress has grown. If he does not become retrospective just here, he ought to, for, on turning to the left side of the passage, a veritable picture of a school-room of 1776 is afforded. Here are the rough wooden benches, the dilapidated window with an old hat stuffed in where a pane of glass should be, the ugly-looking water-pail conveniently within reach, with its generous gourd dipper, and even the well-used strap hanging against the wall. In the midst of all this elegance and taste, this glimpse of a hundred years ago is positively soothing to the eye, furnishing a basis for comparison which makes the rest of the exhibit of still greater interest.

Passing along we come to the exhibit of Pierce's Business College, of Philadelphia, which illustrates its system by a case of actual merchandise samples, and a large volume of penmanship arranged to show the monthly progress. In the outer alcove the Polytechnic College of the State shows specimens from its museum, and a case of 154 birds, stuffed and mounted by undergraduates. Lafayette College shows copies of its text-books, works of faculty and alumni, a number of interesting interior views, photographs of apparatus, collections of insects, plants, and minerals, and splendid work in drawing from the Engineering Department. The two inner alcoves here are filled by the Philadelphia School of Design for Women, with most beautiful paintings in water-color and oil, and original designs on wood and paper. The University of Pennsylvania makes a very full and interesting exhibit of drawings, text-books, models, etc. This last outer alcove is occupied by objects of general interest illustrating the State school system, such as charts, reports, forms used by the superintendents, teachers' certificates, and portraits of prominent educators; and the opposite space is devoted to pictures, plants, etc., illustrating school ornamentation. In the centre room there is a large model of a country school-house, with a detailed description. Samples of the Keystone furniture, Pierce's Patent Folding Furniture, the Excelsior furniture, Davis' Patent Astronomical apparatus, apparatus by Edgerton (successor to J. W. Queen & Co.), apparatus by McAllister, and cases of books and maps published by J. H. Butler & Co., Cowperthwait & Co., Eldredge & Bro., and Sower, Potts & Co., all of which are used largely in this state, and most of them all over the country.

Our Home Companion and Canadian Teacher, London, Ontario, inserts a cut of the Pennsylvania Educational Hall, and adds the following complimentary account of the exhibit:

No other state, or even nation, has done as much to show the world what she is doing in educational matters, as Pennsylvania. This result is largely due to the enlightened zeal and indefatigable energy of Hon. J. P. Wickersham, the State Superintendent of Education. Dr. Wickersham strongly and repeatedly urged upon the Centennial Commissioners the propriety of erecting one large separate building for the educational exhibits of the world; but finding that his representations were not likely to result in any action, next turned his attention to the erection of a building for the educational exhibits of the Keystone State. Notwithstanding many difficulties and discouragements he persevered in his laudable purpose, and the Pennsylvania Educational Hall has been noted during the summer as one of the ornaments of the Centennial grounds. The building is attractive in its architectural appearance, and commodious and convenient in its internal arrangements, and was erected at a cost of about $20,000. It is octagonal in shape, and has wings on northern and southern sides, the former used as rooms by Dr. Wickersham and his assistants, the latter as parlors and such places of conference for teachers and other friends of education who may be visiting the Exhibition. In the centre of the building is a room forty-eight feet in diameter, which is devoted to the exhibition of school furniture, books, maps, etc. Surrounding this room are alcoves separated by an aisle ten feet wide from similar alcoves built against the walls of the building. The alcoves contain exhibits of all the educational institutions of the State, from the lowest to the highest. First comes the Kindergarten, of which there are a number in the State, though they do not form a part of the school system properly, nor are they under state control. Next we have exhibits of the common and district schools, very similar to the rural schools of Ontario. Of these there are upwards of 10,000 in the State. Next we have exhibits of the higher classes of schools, seminaries, academies and city schools. There are some very creditable exhibits of maps, drawings, and other work done in these schools. The city of Pittsburgh, for instance, gives a number of volumes of questions, and the answers given in writing by the pupils. One of the most attractive of the exhibits is that made by the Moravian Seminary for young ladies, which was erected in 1748, and therefore exceeds the American Republic in age by over a quarter of a century. Schools for the blind and feeble-minded are also represented. Passing these, we have next the exhibits of the colleges and universities, among which Girard College holds a prominent place. The work of the Normal Schools, of which there are some seven or eight in the state, is largely represented. There are a number of models of school buildings, and among them a *model school house*, designed to show how a common or district school should be constructed, and what should be its apparatus, furniture, etc. On large charts are represented the prominent features of the Pennsylvania school system and its leading statistics. We cannot now refer to these statistics, further than to say that some idea of the magnitude of the educational interests of the state may be formed from the single fact that the expenditure in support of educa-

tion for several years past has been over $10,000,000 annually. In one of the alcoves is an exhibit of the Sunday-schools of the state, which, though not a part of the public school system, have been justly deemed of sufficient importance to give them a prominent place.

One of the most interesting of all th e exhibits in this hall, and at the same time one of the most creditable to the state, is that of the work done by the soldiers' orphans of various schools. Immediately after the close of the great civil war, Pennsylvania nobly undertook the task of caring for and educating destitute orphans of soldiers who had given their lives for the preservation of the Union. The work thus undertaken proved to be one of great magnitude, requiring much care, attention and supervision, and a large expenditure of money. Dr. Wickersham, to whose kindness the writer is greatly indebted, stated that up to 1876 not less than $5,000,000 had been expended for this object, and that as one result over 300 young ladies who had been soldiers' orphans, and who owed their education to the patriotic liberality of the State, were now engaged in teaching in the schools.

Directors' Column.

IN some parts of the State it is becoming quite common to place bells on the school houses. The following is a notice of an event of the kind: "Upon Oak Grove school, East Hempfield township, Lancaster county, a handsome belfry has been erected, and a fine bell weighing more than two hundred and twenty-five pounds has been placed therein. Several other school houses in the same township have bells on them, and they are found to be a very useful appendage. The bell at Oak Grove was obtained by subscription, the teachers and parents contributing liberally; the school directors erected the belfry."

A GENTLEMAN who has served many years as a school director writes us very earnestly urging the introduction of Physiology as a branch of common school instruction. He thinks room can be made for it by dispensing with some of the details of Geography and abstractions of Grammar. He would have instruction in it given orally in the lower grades of schools; and holds that no study could be more profitable, as most of the evils under which we suffer both bodily and mentally come from a want of knowledge as to how to live rightly. What views have other directors on this subject?

IN the recent death of Peter McConomy, the Lancaster city School Board has lost a valuable member. He had served as a school director continuously from the time the common school system was introduced into Pennsylvania up to the time of his death. He was probably the oldest school director in the state. He was treasurer of the board for over thirty years.

Not only did Mr. McConomy render these services to the common school system, but he was one of the managers of the free Lancasterian school, which afforded education to the children of both the rich and poor of the city before the adoption of that system.

It may teach in some directions a needed lesson of charity to say that this faithful school director was, during all the years he held office, a devoted member of the Catholic church, and that one of his sons is a Catholic priest.

WE have received two communications from W. I. Harvey, Esq., a school director of Chester county, criticising the paper read by Superintendent Shaub at the late meeting of the State Teachers' Association. We think we can give Mr. Harvey's points more briefly than he has expressed them.

He is strongly opposed to the appointment of the County Superintendents by the State Superintendent, and thinks that such a plan would be a step towards despotism, and believes that it is best to leave the local administration of the schools in the hands of boards elected by the people.

Mr. Harvey combats with vigor Mr. Shaub's statement that "In most cases the directors do not even supervise that part of the work for which they are competent." He wants some one to point out specially what part of their duties they neglect. They build the school houses, provide them with furniture and apparatus, and keep them in repair; they employ teachers and fix their salaries; they grade schools and arrange courses of study; they levy and collect the taxes; and he desires to know, whether all these duties are not performed as well as they can be? If not, could officers like County Superintendents perform them any better?

Mr. Harvey is against an increase in the number of superintendents; he would rather dispense with those we have. He has attended on "Directors' Day" at Institutes, and has learned very little from those brought forward to instruct the directors. Many directors work hard for the good of the schools, receive no pay for their services, and don't like to be found fault with.

"DIRECTORS' DAY" was an interesting feature at the institute of Armstrong county. Hon. E. S. Golden presided. The editor of the *Union Free Press* thus comments upon one of the topics discussed:

The idea was broached, that school directors should not be elected by the people, but appointed by the county superintendent. It seems to us that there would be an incongruity, a disturbance of the wholesome check and balance which ought to exist between the officer selected and those who select him for final appointment, in thus filling the office of school director. It would be the withdrawal of the exercise of an important power from the people, and conferring it upon an individual who might be inclined to appoint such as would select him, whether faithful or unfaithful in the discharge of his official duties, which does not harmonize with our notions of the independence that ought to exist in a body of men whose selection for so important an office, to be filled for, perhaps, an indefinite period. The people would not, we apprehend, consent to be deprived of that more than of any other power with which the law has invested them.

SUPT. BAKER'S ADDRESS.

MR. JAMES W. BAKER, Superintendent of Delaware county, delivered an address to the school directors of his county at their recent meeting, on "Directors' Day." We present it below in full, believing that it contains matter of importance to directors in all parts of the state. The reading of the address was followed by a lively discussion on the part of the directors on the question of compulsory attendance at school. The discussion was well reported in the Delaware *County Republican*, and we shall lay it before our readers next month.

THE ADDRESS.

Ladies and Gentlemen—You have been invited to assemble here to-day for the purpose of considering and discussing certain questions pertaining to the proper management of our schools. These questions are very important, and should receive an earnest and careful consideration at your hands. On becoming school directors, you assume a responsibility which you cannot shirk—which you cannot thrust aside without doing untold harm to the rising generation. A school director holds no mean office. It is no small thing to be intrusted with the moral and intellectual guardianship of our public school children. There can be no trust more precious, none more difficult of proper performance, and none on which the free institutions of our country so greatly depend for their perpetuity. The school director, then, like the office, should be no mean man. He should be one who would make himself thoroughly acquainted with the duties of his office, and *unselfishly* strive to discharge them in a way that would produce the most satisfactory results.

I have been closely connected with your schools for some time, and I have necessarily been a close observer of the management of the school affairs in each district of our county. In some districts I have found it much better than in others: but in the main I am happy to say that it has been fair. It, however, greatly needs expansion, for it is entirely too contracted. It should be enlarged and made to cover much more ground. The middle part of the educational field, I admit, receives fair supervision, and is tolerably well tilled, but both extremes of it suffer greatly for want of proper attention. According to the last census, there are in Delaware county about 600 boys and girls over the age of ten years who cannot read and write, and who cannot, of course, attend any school. What effort has been made by the directors of Delaware county in an official capacity, or by the people in general, to secure for these unfortunate children an opportunity to attend school? None in particular. You have, it is true, schools of the proper grade established in their midst, but as far as these poor children are concerned, they might almost as well be established in the moon, for they cannot attend them. It is sincerely hoped that you will give this matter the consideration which it deserves, and that if you can find no way to secure for this class of children an opportunity to attend school, you will ask the law-making power of the State to make a way for you. If parents will deprive their children of this, their most sacred right, the State should intervene and secure it to them, for the State cannot afford to have its prosperity thus retarded and even its existence endangered. This pertains to the *first* extreme. The condition of the *other* extreme is not so bad, of course, but still it is far from being what it should be.

In most of our school districts no provision has been made for higher instruction, Indeed, instead of our schools advancing in grade, they have been retrograding. The higher branches that were taught in them years ago, are seldom or never taught in them now. They are, in fact, becoming more and more primary in their character every successive year. The average of the public school life is not more than four years, and it is gradually decreasing. It is hoped that the minimum average will soon be reached. In one sense the retrograde tendency in our schools is only apparent—it is not real, for they are to day in far better condition than they ever were. It is only the grade of them that has decreased. This lowering of the grade results from two causes, one of which is this *very improvement* in the condition of our schools, and the other is the failure in the management of them to keep pace with it by establishing supplementary schools of high grade for those who have been pushed out of the existing schools. This explanation of the matter may seem somewhat paradoxical to the superficial thinker, but it is nevertheless true. Formerly very few small children attended school in the winter season; now they very generally attend the entire term, thus engrossing to a great extent the time of the teacher, and withdrawing from the more advanced pupils the attention they need and should have, and consequently these pupils are soon forced away from school entirely, or else into private schools. It is a painful fact that most of our schools consist almost entirely of children from six to twelve years of age, even in the winter season. What provision have you made for children twelve years old and over, who have exhausted the resources of your schools? None. It is possible that many children leave the public school before they have entirely exhausted the resources of it, but whilst in attendance they are so often compelled to labor under so many disadvan-

tages in study, it is a positive waste of time to continue longer at it; hence they are obliged to withdraw from it sooner than they otherwise would. A remedy for this state of things is sadly needed, and should be sought for immediately. But where shall we find it? In the establishment of higher schools. The grade of our public schools cannot be kept up, nor can the average age of school life in them be increased in any other way. Four years as an average is entirely too short a time in which to make preparation to solve the problem of life. The solution of the problem is difficult, and requires much preparation to grapple with it with only a tolerable degree of success. The men who shall succeed in increasing the average time of this preparation by two or three years more, at least, will have performed an act that will not let them be soon forgotten.

I trust I have said enough of this part of your field of labor to give you some idea of its condition, and I now strongly urge you to give it your earnest attention and to strive to improve it. I have already referred to your management of the middle part of this field, and have commended it: but still candor compels me to say that it is still very defective in certain particulars in different parts of our county.

The main defects of it are suggested in the first, second and third questions of the circular inviting you to assemble here to-day. There are other serious ones, however, but you will not have time now to consider them. If you will remove the main ones, the minor ones will soon disappear. Before passing on to another point I may say here that I am of the firm belief that the future prosperity of your present schools does not depend only on the removal of the defects in the present management of them, but that it does depend much on the provisions you shall make for their outgrowth—that it does depend much on the incentive you shall give them for greater effort—that it does depend very much on the establishment of supplementary schools of higher grade.

I have now given you an outline of what I desire you to consider, and I trust that it will induce you to ask yourselves such questions as these;

1. How shall illiteracy be prevented in our county?

2. How shall the condition of our schools be still more improved?

3. How shall the average time in which children attend the public schools be increased?

These are very important questions and cannot be answered in a moment. They must be carefully examined and studied. In the study of them you must lose sight of selfish motives—all selfish interests; you must not let your minds be biased by any foreign or improper influence if you would arrive at a just and an impartial conclusion. A word or two more and I have done. No work can be done well without thought, without study. Even the simplest kinds of work require thought for their successful performance. The proper management of our school affairs is a most difficult and responsible work, and forms no exception to the statement just made; but it requires much thought—much close and persistent study, and it is just here where the cause of most of the defects in the present management of them lies. Let that be removed and these will necessarily disappear. Directors generally do not examine—do not study the work they have in hand closely enough. Some scarcely give it any thought at all. This is an unwelcome fact, no doubt, but is nevertheless true.

There is plenty of evidence on every side that the welfare of our schools concerns neither directors nor people in general as much as it should. All undoubtedly have more or less interest in them, but it is not of that warm, hearty kind that would spring from a proper appreciation of them.

I have not made these remarks in the spirit of fault-finding. I have but one purpose in view, and that is to improve the condition of your schools and to afford all an opportunity to obtain a reasonably fair education at them. I trust that you will receive them in the same spirit with which they have been given, and that you will seriously consider the questions suggested, and make an earnest effort to answer them in such a way as will produce the desired result.

Obituary.

REV. S. K. BROBST.

REV. S. K. BROBST was born in Lehigh county, November 16th, 1822. Prior to entering college at Mercersburg, he taught school several years. From Mercersburg he went to Washington College, where he was a classmate of Hon. James G. Blaine. After graduating, he entered upon the work of the ministry in the Lutheran Church; but his physical strength not being equal to the regular duties of the pastor, he did not spend many years in the direct pastoral relation. He was a prominent and influential member of his Church, and always held in the very highest esteem. In the cause of education he took a very active part. He was the founder of the "Jugend Freund," the first German paper for children in America. He was also the editor of several German Church papers, and was the first man to move in the direction of establishing Muhlenberg College. At the Teachers' Institute in Allentown he was frequently in attendance, and his kind words and wise counsel will not soon be forgotten by the teachers of Lehigh County.

He was at the time of his death a State Trustee of the Keystone State Normal School, at Kutztown, in Berks county, which position he ably filled for nearly four years. The board of trustees of that institution, at a late meeting, adopted among others the following resolutions:—

Whereas, our Heavenly Father, in His all-wise providence, has seen fit to remove by death from our midst our esteemed Trustee and friend, Rev. S. K. Brobst, who for nearly four years has been connected with this Institution, and during that time has most devotedly and ardently labored in its interests; therefore, be it

Resolved, That we, the Board of Trustees of the Keystone State Normal School, greatly esteeming his intellectaul attainments, his kind and affectionate desposition, and his pure Christian character, deeply mourn his loss, as a trustee, as a friend and as a man of God.

Resolved, That we in his removal recognize the loss of one whose great foresight, and judicious counsels, as an educator, render him eminently worthy of our profoundest regards while living, and now that he is dead, worthy of our most affectionate remembrance.

His death took place in Allentown, Dec. 23, 1876.

OFFICIAL DEPARTMENT.

DEPARTMENT OF PUBLIC INSTRUCTION,
HARRISBURG, January 3d, 1877.

To County, City and Borough Superintendents:

GENTLEMEN: In place of the usual annual written report made to this Department you will this year prepare and forward an historical sketch of education within your several jurisdictions.

In no other way, it is thought, can so much be done at this time for the cause whose interests have so largely been intrusted to your hands. The sketches should be *accurate*, giving names and dates; *full*, embracing all of public importance relating to the subject; *concise*, omitting all unnecessary details and comments. Compiled in a volume, these sketches, containing in brief the history of education in every county, city, and borough of the State, will constitute a document of great interest and value. It is hoped that every school officer addressed will consider himself personally responsible for the success of this plan of doing a much-needed work, and will at once set about collecting material, in order that no part of the State shall be allowed to suffer from any official procrastination or neglect.

Each sketch should include whatever it may be proper to say upon the following topics:

1.—*The Earliest Elementary Schools.* When and by whom established. How supported and managed. Their character. The teachers.

2.—*Elementary Schools up to the time of the passage of the common school law in 1834.* The condition of the schools. The effect of the laws relating to education passed prior to 1834. Schools founded and supported by churches. Efforts, if any, to secure free schools.

3.—*The History of Common Schools since 1834.* The growth of the system. Prominent school officers. Leading teachers. Work done.

4.—*Academies, Seminaries and Noted Private Schools.* When and by whom founded. Full lists of all, whether now open or not, with all important facts. The county academies. Aid received by them from the State. Disposition of buildings.

5.—*Colleges and Universities.* History of all institutions of this kind, whether now in operation or otherwise. Present condition. Statistics.

6.—*Miscellaneous Educational Institutions.* Libraries, literary and scientific societies. Clubs for mutual improvement. Special schools of all kinds.

7.—*Teachers' Institutes and Associations.* Meetings of teachers. Meetings in behalf of education. Benefactors of education.

The outline given above is not intended to be strictly followed, but to be merely suggestive. Each superintendent should arrange his facts to suit himself; but it is especially desirable that he should in some systematic way cover the whole field of education in his district. It is known that in some parts of the State the amount of material to be collected is not large, while in others it is extensive and rich. The outside limits of a sketch is fixed at *twelve* pages of the Annual Report, but some of the superintendents, it is thought, can compress all that need be said in one-third of that space.

Yours respectfully,
J. P. WICKERSHAM,
Supt. Public Instruction.

DOCUMENTS FOR SUPERINTENDENTS.

The usual supply of school reports and official blanks were forwarded to the several superintendents during last month. The boxes also contain twice as many digests of the school laws as are needed to supply each President and Secretary with a copy. The superintendents should be very careful in distributing the balance and give them only to those who will make the best use of them. The boxes have been shipped by W. H. Smith, of this city, who will pay all charges for freight and expressage. As soon as they have been received, Mr. Smith should be notified of the fact, and also whether or not any expenses have been incurred.

PERMANENT CERTIFICATES GRANTED.

No.	NAME.	RESIDENCE.
1803	Amanda Harbison.	West Lebanon, Ind. co.
1804	Lyde M. Thompson.	Allegheny City,
1805	Mollie E. Hamilton.	" "
1806	Lizzie Parkhill.....	Springdale, Allegheny co.
1807	Anna M. Adams....	Pittsburgh.
1808	T. J. McCollum.....	Troy, Bradford co.
1809	Jennie S. Hunter...	Boalsburg, Center co.
1810	Emma S. Isenberg..	Huntingdon, Hunt'on co.
1811	T. S. Briggs.....	Pittston, Luzerne co.
1812	Annie W. Mitchell..	Allegheny City.
1813	Mary Ross.....	" "
1814	M. J. Boggs.....	" "
1815	Mary R. Galbraith..	Mars, Butler co.
1816	Isaac E. Schoonover	Bloomsburg, Columbia co.
1817	Mrs. I. E. Schoonover	" "
1818	Elizabeth Mitchell..	White Ash, Allegheny co.
1819	Sallie E. Mayer.....	Reading, Berks co.
1820	Melissa M. Howell.	" "
1821	Amanda G. Jones...	" "
1822	Mary S. Jones.....	" "
1823	Mary M. Ketrer.....	" "
1824	John C. Wentzel....	" "
1825	Martha S. Stahle....	" "
1826	Lizzie Cotterel.....	" "
1827	Emma German.....	" "
1828	Ruth L. Morgan.....	" "
1829	Mary E. Jones.....	" "
1830	Emma Werner.....	" "
1831	Fannie E. Hobson..	" "
1832	Annie L. Frees.....	" "
1833	Clara A. Gossler.....	" "

ITEMS FROM LATE REPORTS.

ARMSTRONG.—Our schools are getting along well.

BEDFORD.—The schools are in a better condition, as a rule, than during last winter.

CUMBERLAND.—District institutes have been organized in Penn and Silver Spring townships.

FAYETTE.—The instruction at our institute was practical and suited to the wants of our teachers.

JUNIATA.—With a few exceptions, the schools are doing well.

SNYDER.—Eleven districts hold district institutes. Some of them meet semi-monthly, and all report their proceedings to the county papers.

UNION.—Our institute was well attended, the school directors well represented.

EARLY STEPS.—There will be found in all districts, some persons not friendly to instruction in music in the schools, and one or more that are bitterly opposed to it. These persons should be handled with gloves; reasoned with and persuaded. As among bad boys, if one is won to the teacher's cause, he will do much toward making the others behave; so by making an ally of one of the original opponents of music, the others may be weakened in their opposition. At any rate, let not the teacher who loves music and desires to have its refining influence in his school—let not such be afraid to approach the enemies of musical instruction, whether the hostility has its origin in penuriousness or prejudice. The blacksmith instructs his apprentice to keep close to the horse to avoid being hurt in the event of an accident. It will surely be not denied that if tact and persuasion are the only instruments, "the end justifies the means." Begin by getting an opinion in favor of music from the patrons; proceed by getting a similar opinion from the school. When singing has been introduced, make it as general as possible,

FAR AWAY.

M. LINDSAY.

1. Where is now the mer - ry par - ty, I remem - ber long a - go; Laughing
2. Some have gone to lands far dis - tant, And with strangers made their home; Some up-
3. There are still some few re - main - ing, Who remind us of the past, But they

round the Christmas fire-side, Brighten'd by its rud - dy glow: Or in summer's balm - y
on the world of wa - ters All their lives are forced to roam; Some are gone from us for-
change as all things change here, Nothing in this world can last; Years roll on and pass for-

eve - nings, In the field up - on the hay? They have all dispers'd, and wander'd Far a-
ev - er, Longer here they might not stay,— They have reached a fair - er re - gion Far a-
ev - er, What is coming, who can say? Ere this clos - es ma - ny may be Far a-

way, . . far a - way, They have all dispers'd, and wander'd Far a - way, far a - way.
way, . . far a - way, They have reached a fairer re - gion Far a - way, far a - way.
way, . . far a - way, Ere this clos - es ma - ny may be Far a - way, far a - way.

but, should a pupil desire not to sing (make it impossible for him to *refuse*), let him be excused on apparently good grounds. Let not boys from twelve to sixteen be urged to sing. If their voices are rough, or breaking, advise them not to sing; and if pupils cannot sing in tune, do not permit them to sing—at least, not with the more tuneful children. Children with chronic sore-throat, or bad colds, and young ladies who say it tires them, should not be urged to sing, since great care should be taken of the voices of children. What children shall study is not generally in the power of the teacher to decide, the directors usually claiming that authority. Let music be treated in the same manner. Give all a chance to join in the exercise, but because a few refuse to take part, do not give up in despair. To bring about the introduction of music, do not call a town-meeting. Such a course gives rise to a division of opinion and argument contrary to the movement on foot, and when a person has once taken a stand publicly on a measure, he seldom leaves the position chosen. Look, therefore, to early steps.—*Blackman.*